

California Department of Forestry and Fire Protection
Jackson Demonstration State Forest

TIMBER SALE AGREEMENT

S-A-M-P-L-E

14 Gulch 2009

THIS AGREEMENT, made this [date] day of [month], 2009, at Sacramento, County of Sacramento, State of California, by and between the State of California, through its duly appointed, qualified and acting Director of Forestry and Fire Protection, hereinafter called the STATE, and [purchaser name] of [address], hereinafter called the PURCHASER.

WITNESSETH, that for and in consideration of the covenants, conditions, agreements, and stipulations hereinafter set forth, the parties hereto agree as follows:

1. The STATE agrees to sell to the PURCHASER, and the PURCHASER agrees to purchase from the STATE, all the live timber designated for cutting by the STATE, and merchantable as hereinafter defined, on an area of about 235 acres, designated on the ground by the STATE's assigned Timber Sale Officer prior to cutting in parts of Sections 3, 4, 9 and 10, Township 17 North, Range 16 West, MDB&M, in the Jackson Demonstration State Forest approximately 9 miles East of Caspar, Mendocino County, California, and as designated on the attached map (Exhibit A, Exhibit B) which hereby is made part of this Agreement, at the rate and in strict conformity with the requirements and conditions hereinafter set forth for sawlogs and other merchantable material; the PURCHASER further agrees to do other work as herein specified.

By having submitted his or her bid and entering into this Agreement, the PURCHASER hereby declares the intention to timely harvest and remove the timber designated for cutting within the harvest area described herein. If it appears to the Timber Sale Officer that the PURCHASER does not have a good faith intention to perform the scheduled harvesting, the PURCHASER shall be provided a hearing with a STATE manager who is not directly involved in operations at Jackson Demonstration State Forest in order to provide the PURCHASER with an opportunity to explain why the STATE ought not to terminate the Agreement. The STATE manager who administers the hearing shall consider all documentation and testimony provided by the STATE and the PURCHASER, and such materials shall constitute an administrative record upon which his or her decision shall be entirely based. If the STATE manager determines that the PURCHASER's intent is to not perform the specified harvesting in a timely manner: 1) the Agreement between the STATE and the PURCHASER shall be immediately terminated based on the PURCHASER's failure to perform substantial and material terms of the Agreement, constituting a breach of contract; 2) the PURCHASER shall be liable to the STATE for reasonable damages associated with breach; and 3) the contract may be awarded to the next highest bidder.

This contract includes work to be done as mitigation for the effects of timber operations. This work can include activities in direct mitigation, off site mitigation, or compensation for the impacts of timber operations. It includes timber stand improvements such as weed abatement, hardwood reduction and slash reduction; and road work such as abandonment, installing water breaks and rolling dips, and removal or upgrades to stream crossings; all work done to ensure that timber operations do not result in significant effect on the environment.

The merchantable species, estimated net merchantable amount by the Revised Scribner Log Rule as prepared by the Northwest Log Rules Advisory Group, July 1, 1972, the rate of payment per thousand board feet, and the estimated total value are as follows:

Species	Estimated Net Volume (Mbf)	Rate per Mbf	Estimated Total Value
YG Redwood	790	\$ _____	\$ _____
YG Douglas-fir	771	\$10	\$ 7,710.00
YG Grand fir, Western hemlock	124	\$5	\$620.00
			\$ 8,330.00
TOTALS	1,685		\$ _____

All timber removed by reason of this sale shall be 100 percent scaled by a recognized, independent, third party scaling organization at the PURCHASER's expense. Additional provisions governing scaling appear elsewhere in this Agreement.

2. The deposit of nine thousand dollars (\$9,000) submitted with the bid for this timber shall be held by the STATE as a guarantee that all periodic payments as called for by the Timber Sale Officer shall be made in advance of cutting of timber referable thereto and for the satisfactory performance by the PURCHASER of all the terms and conditions hereof. This deposit shall be applied by the STATE to any final payments called for by the Timber Sale Officer upon completion of faithful performance by the PURCHASER. No cutting shall proceed on any trees for which payments have not been made. During active operations, the Timber Sale Officer shall establish a payment schedule based on the estimated rate of cutting. Periodic payments will be required in increments of not less than the value of two weeks of cutting, and shall be based on three-week cutting projections provided to the STATE by the PURCHASER. Cutting projections shall be updated each week by the PURCHASER at the time weekly falling scale is reported, as described in Section 7.p of this Agreement. Payments shall be made when requested by the STATE. If payment is not received by the date requested, the STATE may suspend the PURCHASER's operations until payment is received.

If legal action by a third party prevents the initiation of timber harvesting activities within 90 days of STATE approval of this Agreement, the PURCHASER may request and the STATE will approve the termination of the Agreement without prejudice, and the STATE will return the PURCHASER's performance security and bid deposit(s), not including any accrued interest. The PURCHASER's written request for

termination must be submitted within the 90-day period and must reference this condition of the Agreement.

3. Unless written extension of time is granted by the Director of Forestry and Fire Protection, at least 500 thousand board feet of merchantable timber shall be paid for and cut between May 4, 2009 and June 30, 2009. This date may be extended or the required volume may be adjusted mutually by the STATE and the PURCHASER due to unforeseen circumstances. All remaining merchantable timber designated for cutting shall be paid for and felled, and all other timber operations shall be completed by October 15, 2010. This Agreement shall terminate on May 1, 2011, by which date all requirements of the Agreement must be completed.

The STATE may grant an extension of operating time to complete operations on terms and conditions as may be specified by the STATE. No extension of the specified payment schedule shall be granted unless the PURCHASER pays, in advance, an interest payment on the outstanding timber value owed the STATE under the contract. Interest shall be payable at 5.25 percent per annum, prorated for the term of the extension. The "outstanding timber value" shall be the original contract timber value established by cruise estimate, or specified portion thereof, less the sum of payments received by the STATE as of the applicable designated payment date. Upon completion of harvesting operations, the STATE shall recalculate the interest due based upon the actual value of timber removed and the actual monthly unpaid balance during the term of the extension and adjust the final payment accordingly. Operating time extensions granted under this provision shall not alter any scheduled progress payments required above. Operating time extensions shall not be granted if said scheduled progress payments have not been received by the STATE, or if any other contractual requirements have not been met by the PURCHASER.

Once timber harvesting operations have commenced, the PURCHASER agrees to continue operations at a normal production level until all contractual provisions are completed unless shutdowns are required by wet soil conditions, hazardous fire conditions, or are otherwise approved by the Timber Sale Officer.

4. The boundaries of the sale area have been marked as depicted on the attached maps (Exhibit A, Exhibit B) and have been examined by the PURCHASER. All trees marked for cutting, whether merchantable or not, shall be felled by the PURCHASER. No dead standing conifer trees or unmarked hardwood trees shall be felled except as provided for elsewhere in this Agreement. The PURCHASER agrees to log the merchantable conifer and hardwood timber designated for cutting as described in this Agreement. The STATE does not guarantee the amount of timber designated in the estimate.

The PURCHASER understands that the primary objective of the STATE in entering into this Agreement to log the sale area, which is a part of the Jackson Demonstration State Forest, an experimental forest of the State of California, is to provide a research and demonstration area and to determine the facts and data concerning the timber sale area and the treatment thereof through the actions of the PURCHASER under this Agreement.

The PURCHASER agrees to keep records and furnish the STATE production and cost data with respect to all timber harvesting operations and other forestry activities conducted pursuant to this Agreement, including road rocking, crossing installation/removal and installing water breaks and rolling dips. Required data shall include person-hours and equipment-hours spent on each activity, and applicable rates for employees, machines and supervision, and costs for any materials or services needed for completion of activities required by this Agreement. The information shall be reported on a form provided by the STATE (Exhibit E), or in an alternative format proposed by the PURCHASER and acceptable to the STATE. The requirement for providing production and cost data shall apply equally to any contractors or subcontractors hired by the PURCHASER to complete the projects specified above. This information will be furnished to the STATE before the performance bond or other security is released.

The PURCHASER further agrees to furnish the STATE copies of the Timber Yield Tax calculations and reporting forms submitted to the Board of Equalization for timber harvested pursuant to this Agreement. Yield tax information shall be provided no later than January 31 for timber harvested during the previous calendar year.

The PURCHASER understands that the protection of research and experimental values, the maintenance of low fire hazards, the prevention of injury to trees not designated for cutting, the creation of conditions favorable to the regeneration of the State Forest, and other provisions of this Agreement are for fulfillment of the research and demonstration purpose, and the provisions of this Agreement will be strictly enforced to that end.

5. The PURCHASER agrees that pursuant to Section 4650.1, Public Resources Code, timber from State Forests shall not be sold to any primary manufacturer, nor to any person for resale to a primary manufacturer, who makes use of such timber at any plant not located within the United States unless it is sawn on four sides to dimensions not greater than 4 inches by 12 inches. The PURCHASER has not sold unprocessed timber harvested from private timberlands and exported it into foreign commerce from California within one year prior to the bid date and agrees to refrain from that activity for one year after contract termination.

The PURCHASER agrees that pursuant to Sections 1515-1521, Title 14, California Code of Regulations, timber in this sale shall not be substituted for timber exported by the PURCHASER obtained from other sources. The PURCHASER further agrees pursuant to Section 1517, Title 14, California Code of Regulations, to give written notice to the STATE of any or all locations where said timber will be processed until such time as the timber has been sawn to dimensions of 4 inches by 12 inches or less. The required written notice shall be provided to the STATE at least one week before commencement of delivery of logs to each processing location.

The PURCHASER as required by the Timber Sale Officer shall identify all timber by making a mark with a brand provided by the STATE in a conspicuous place on the end of each log or piece of timber prior to removal from the sale area. Prior approval must be obtained in writing

from the Sale Officer regarding any changes in the brand or branding procedure.

If the PURCHASER sells, exchanges, or otherwise disposes of said timber before it has received domestic processing, the PURCHASER agrees to require each buyer, exchangee, or recipient to execute a written agreement which shall:

- a. Specify domestic processing for the timber involved pursuant to Section 4650.1, Public Resources Code.
- b. Require the execution of said agreement between the parties to any subsequent transactions involving said timber.

The failure of any party to a transaction involving said timber to execute the required agreement shall constitute noncompliance on the part of the PURCHASER with the terms of this provision.

The PURCHASER shall file with the STATE a copy of each such agreement and shall retain for three years from the date of each transaction the records of all sales, exchanges, or dispositions of such designated timber. Upon request, such records shall be made available to STATE.

Any purchaser of timber from State Forests who makes or permits use of said timber in violation of Section 4650.1, Public Resources Code, or Sections 1515-1521, Title 14, California Code of Regulations, shall be prohibited from purchasing State Forest timber for a period of five years and may have his timber operator license suspended for up to six months.

6. The minimum log dimensions for utilization purposes will be 8 feet in length and 6 inches in small-end diameter. However, any material unmerchantable because of size as herein defined, removed at the option of the PURCHASER, shall be scaled and paid for at the same rate as merchantable material.

Any log segment presented for scaling shall be scaled as merchantable which has a net merchantable volume of at least 10 board feet, provided that the log segment has a net merchantable scale of at least 25 percent of the total volume, and provided that firm stain shall not be regarded as defect and no deduction shall be made for same in scaling.

7. The forest products made and all timber removed by reason of this sale shall be scaled by a recognized independent "third party" scaling organization agreeable to the STATE. Logs will be scaled as presented and results of said scales shall be conclusive and binding upon the PURCHASER and the STATE unless otherwise contested through check scale procedures. Procedures required by the STATE for implementation of "third party" scale shall be as follows:

- a. Logs shall be scaled using the Revised Scribner Log Rule as prepared by the Northwest Log Rules Advisory Group, July 1, 1972, making allowances for visible defect in accordance with the scaling practices contained in the latest National Forest Log Scaling Handbook (Chapters 20 and 30).

- b. Payment for scaling and reporting services performed by the scaling organization shall be made by the PURCHASER of State Forest timber, and the STATE assumes no responsibility in this regard.

Prior to scaling STATE logs, the STATE will provide the scaling organization with a scaler information sheet. The PURCHASER shall insure that all third party scalers who scale STATE logs delivered from this sale are knowledgeable about contract specifications governing scaling requirements under this Agreement.

- c. All loads must be scaled at the first unloading point and within three working days from the date of removal from the State Forest.
- d. The scaling organization or the PURCHASER shall notify the State Forest Manager or the Manager's representative of all scaler rotations of one month or more so that the STATE may obtain adequate check scales.
- e. Organization scalers shall be required to make a copy of the scale tickets available to the STATE on those loads being check scaled by the STATE.
- f. Organization scalers shall perform the following services:
 - (1) Record log species, diameter, length, and amount of defect on the scale tickets and forward such information to the scaling organization on the day of scaling.
 - (2) Scale all logs in a load at the same location and time.
 - (3) Identify with paint those loads that have been scaled and immediately notify the STATE when it is known by the scaler that a load has bypassed or been picked up from the designated scaling location before being scaled. In the event of a missed (non-scaled) load, the PURCHASER shall within five working days account for the load by the following process:
 - (a) Average the gross volumes and net volumes of four loads hauled immediately prior to and four loads hauled immediately after the missed load. The ticket numbers of the loads used for calculating the averages shall be provided to the STATE for audit purposes.
 - (b) Find a representative existing scaled load that has a gross volume within one percent of the calculated average gross load volume and a net volume within three percent of the calculated average net load volume. The gross and net volumes of the selected load must be equal to or more than the calculated averages. If no representative load can be found then a log load scale ticket must be created which

meets these specifications. The STATE retains the right of approval on load selection.

- (c) Using the trip ticket number of the missed load, insert the scale ticket data of the representative or created load into the scale reporting system. The load shall be included in the 15 day summary covering the time period when the data was inserted into the system. The STATE shall be notified when this occurs.
- g. The PURCHASER shall notify the STATE of any change on a scale ticket that affects the volume of the original scale after the copy has been mailed to the STATE.
- h. The scaling organization shall process scale tickets of all STATE loads daily and mail, at its expense, copies of daily scale certifications and log listings to the State Forest Headquarters. Also required are semi-monthly scaled volume summaries as of the 15th and the last day of the month which shall include year-to-date and sale-to-date reports and provide gross and net volume totals by species. When adjustments are required to compensate for omissions or errors in daily scaled volume summaries, the STATE may request the scaling organization to issue an adjusted summary report for those specified time periods. The PURCHASER shall also be notified by the STATE when such an adjustment has been made.
- i. At least three loads scaled within the previous five operating days shall be left rolled out in the mill yard where scaled to facilitate check scaling.
- j. The scaling organization shall conduct a minimum of one check scale per month per scaler during the operating season to document scaler proficiency. Standards for proficiency shall be taken from Section 64 of the National Forest Log Scaling Handbook. Copies of such check scales shall be furnished to the STATE within 10 days of completion of said check scales. The STATE reserves the right to check scale organizational scalers at intervals determined by the STATE.
- k. If, through STATE check scales, it is found that a scaler's work is unacceptable, the STATE will notify the scaling organization and the PURCHASER and request a check scale to be submitted to the STATE within 10 working days. Should remedial action fail to achieve correction, the STATE may immediately terminate the acceptance of the scaler's work until the scaler's competence is mutually certified by all concerned parties. PURCHASER scaling complaints shall be jointly and promptly investigated by the STATE and the scaling organization. The STATE may terminate third party scaling and assume scaling responsibilities at any time if the scaling organization's scale or records are unacceptable to the STATE. The PURCHASER shall pay the STATE a surcharge on stumpage payments of \$5.00 per thousand board feet net scale for all timber scaled by the STATE or by a hired agent of the STATE

following termination of third party scaling pursuant to this paragraph.

- l. The maximum scaling length shall be 20 feet. Greater lengths shall be scaled as two or more logs, making allowance for taper. When the scaling lengths into which a log is divided for scaling are unequal, the longer length or lengths shall be considered as lying in, or toward the larger end of the log. Scaling lengths of multiple length logs shall be computed in accordance with the scaling practices contained in the latest National Forest Log Scaling Handbook.
- m. Allowance for trim shall not exceed 6 inches for each 20 feet of length or fraction thereof. Logs overrunning the specified trim allowance shall be scaled to the next higher foot in length.
- n. Logs shall be scaled at the small end and the average diameter inside bark taken to the nearest inch. Logs 21 feet and longer shall be measured at both ends and the average diameter inside bark taken to the nearest inch. Taper in logs 21 feet and over will be distributed according to the latest National Forest Log Scaling Handbook (Chapter 10). Taper in butt logs 21 feet and over shall be distributed according to USFS Supplement 4 dated March 1987, for all species as follows:

DIAMETER TAPER FOR BUTT LOGS 21 FEET AND OVER - ALL SPECIES

<u>Log Length</u>	<u>Taper</u>
21 to 27 feet:	2"
28 to 40 feet:	4"
41 to 51 feet:	6"
52 feet and over:	butt measurement required

- o. The STATE shall provide the PURCHASER with a sufficient supply of five-part load receipts to identify each load of forest products removed. The fifth copy (card stock) shall be affixed to the load and shall stay with the load until decked. The white original shall be retained in the load receipt booklet and returned to the Timber Sale Officer by the operator as called for.

The PURCHASER may, on approval, provide equivalent load receipts to be used in place of the STATE's form. If the PURCHASER's forms are used, the PURCHASER shall provide to the STATE a sufficient quantity of forms for the estimated volume to be removed, prior to commencement of operations, forms to then be distributed to the operator by the Sale Officer. The STATE's copies of the load receipts shall remain in the load receipt booklet until collected by the Sale Officer.

To provide additional identification of loads of forest products removed, the PURCHASER shall paint the last three digits of the load receipt number on the rear end of each of the two outside bunk logs of each load. The PURCHASER shall provide for this purpose a sufficient quantity of high-

visibility aerosol paint of a quality and color acceptable to the STATE.

- p. To facilitate monitoring of periodic sale volume harvested, the PURCHASER shall (1) record unit identification on each log load receipt presented to the STATE, and (2) provide a weekly report of faller days and volume felled by unit. Weekly falling information is to be available for collection by the Timber Sale Officer or delivered to the State Forest headquarters no later than the following Tuesday.

8. The PURCHASER agrees to the following utilization standards and practices:

- a. Only that merchantable downed timber that is designated by the Timber Sale Officer shall be removed, and it shall be scaled the same as timber felled under this Agreement. Other downed timber, whether merchantable or not, shall be left in place, except where it occurs within the clearing limits for construction of truck roads and landings. Snags, whether merchantable or not, shall be left standing unless they must be felled for road or landing construction, for cable corridors, for safety reasons, or for fire protection purposes as designated in the Timber Harvesting Plan or by the Sale Officer.
- b. Stumps shall be cut as low as possible and in no case shall be over 12 inches on the uphill side except where more height is needed to save timber or insure safe working conditions. Stumps which are not cut in accordance herewith and which should have been so cut in the judgment of the Timber Sale Officer shall, at the STATE's option, be either recut to 12 inches or less, if redwood, or paid for at the rate of \$15.00 each. Such payments shall be regarded as liquidated damages in view of the difficulty of determining the actual damage to the STATE through wastage of the quantity and quality of the material involved.
- c. All merchantable conifer trees felled by the PURCHASER shall be utilized to the fullest extent practicable, and at least to a top diameter inside bark of six inches. Maximum log length, including trim, shall be 41 feet unless longer lengths are approved in writing by the STATE.
- d. The PURCHASER shall make every effort to conduct the felling operations to prevent careless or unnecessary breakage of timber. All trees designated for cutting shall be felled within the timber harvesting plan boundaries to the fullest extent practicable, considering locations of watercourses, felling damage, yarding method, and damage to leave trees. No trees shall be felled across the State Forest property line. When topography, lean of tree, regeneration and residual timber, location of roads, landings, watercourses, utility lines and buildings permit, all trees shall be felled in line with skidding direction. Gulch bottoms and other areas of heavy stands of timber as designated by the Timber Sale

Officer shall be felled and logged in two or more stages in order to minimize blocked layouts and breakage.

Cable tree-pulling methods shall be used where needed to prevent unnecessary breakage to all trees having volumes in excess of 1,500 board feet, to prevent felling of trees into or across watercourses, or to control felling direction near utility lines, public roads and property lines. Where poor volume recovery is expected because of anticipated breakage, the Sale Officer may specify that individual trees otherwise designated for cutting shall be left standing.

All fallers shall be equipped with falling wedges at all times. Fallers working in the Watercourse and Lake Protection Zones shall have ready access to and be knowledgeable in the use of tree-falling jacks and shall use them as necessary to direct the fall of trees away from watercourses.

- e. Timber wasted in tops, timber wasted by careless or improper bucking, timber broken in careless felling, and any timber merchantable according to the terms of this Agreement which is cut and not removed from any portion of the cutting area when operations on such portions are completed, or before this Agreement expires or is otherwise terminated, unless such wastage or nonremoval involves small amounts, and in the judgment of the Timber Sale Officer, is justified by existing conditions, shall be paid for at double the stumpage price in this Agreement. The amounts herein specified shall be regarded as liquidated damages as it will be impractical or extremely difficult to fix the actual damage.

Unless extension of time is granted by the Director of Forestry and Fire Protection, the right, title and interest to any timber for which payment has been made under the provisions of this section shall revert to the STATE without compensation unless it shall have been removed from any portion of the sale area accepted by the Sale Officer by the date of that acceptance as designated in accordance with provisions hereunder.

- f. Cull logs or conifer species not merchantable as defined in the Agreement, removed in separate truck loads from the sale area at the request of the PURCHASER and with the prior written approval of the STATE, shall be paid for by the PURCHASER at the rate of \$5.00 per ton, or at \$25.00 per thousand board feet gross scale, if scaled.
- g. When approved in writing by the STATE, hardwood trees felled, knocked down or damaged by logging operations may be removed by the PURCHASER under conditions prescribed by the STATE. Hardwoods removed from the sale area shall be paid for at the rate of \$0.20 per ton.

9. The PURCHASER shall notify and obtain approval from the STATE in advance on each occasion of conducting timber operations in the sale area on weekends or State holidays. Active timber operations within 1,000 feet of open campgrounds and picnic areas will be limited to the

hours between 7:00 a.m. and 6:00 p.m., and shall be entirely prohibited on Saturday, Sunday and State holidays. The fueling and routine maintenance of logging equipment, and the watering of truck roads, are permitted between the hours of 7:00 am and 11:00 pm, without restriction to days of the week or holidays.

10. The Forest Practice Rules for the Coast Forest District, and the Timber Harvesting Plan for this timber sale (THP 1-08-081 MEN), are hereby made a part of this Agreement, and the PURCHASER agrees to comply with each and all of the terms thereof in the same manner as if said Timber Harvesting Plan and Rules and each thereof were set forth at length in this Agreement. Rules or regulations which become effective during the term of this agreement, and any amendments to the Timber Harvesting Plan, shall be adhered to by the PURCHASER to the extent required by law.

Operating conditions and specifications shall be modified as required to comply with changes in the legal status of, or in the laws pertaining to protection measures for, any species under the federal Endangered Species Act. Such modifications shall be agreed upon mutually by the STATE and the PURCHASER.

Timber operations required under this Agreement shall be conducted by a Licensed Timber Operator. On completion of timber operations satisfactory to the Timber Sale Officer on that portion of the Timber Harvesting Plan area for which each Operator is responsible, the Operator shall certify by letter to the STATE that all operations are complete and that they comply with the Forest Practice Rules and the Timber Harvesting Plan. The STATE may prepare annual partial completion reports when it is in the STATE's interest to do so.

Forest Practices and operational procedures in addition to those set forth in the said Rules and Timber Harvesting Plan shall be required as follows:

- a. A pre-work conference to be attended by representatives of the STATE, the PURCHASER, and all timber operations subcontractors is required before any timber harvesting activities may begin. A detailed logging plan for the sale area shall be prepared and submitted by the PURCHASER to the Timber Sale Officer for approval at least two working days prior to the pre-work conference. The logging plan shall include the locations of any proposed new landings and roads not anticipated in the Timber Harvesting Plan; a schedule of road construction, felling, logging, cleanup, and other operations within the sale area; and the number, types and special requirements of the equipment to be used in the sale area.

Also required are pre-work conferences for any other projects associated with this Agreement, with attendance by representatives of the STATE, the PURCHASER, and all project subcontractors. The PURCHASER is responsible for ensuring that all contractors are provided with relevant portions of any applicable documents, including the Timber Harvesting Plan, the Timber Sale Agreement, and permits from other agencies.

The PURCHASER shall notify the Timber Sale Officer of any changes in the numbers or types of logging equipment or personnel assigned to the sale area that may affect productivity.

- b. All logging operations shall be by natural logging areas and in an efficient, orderly, and progressive manner. The STATE may designate the sequence in which the units are to be logged.

No timber operations shall be conducted after February 1 of any year until the STATE or the PURCHASER has completed required surveys for northern spotted owls, and extension of the No-Take Certification has been received from the appropriate wildlife agency. Presence of owls in or near the sale area may impact the conduct or timing of harvesting operations.

Timber operations shall comply with the seasonal operating restrictions described in the Timber Harvesting Plan.

- c. In the sale area not designated for skyline yarding, any method of yarding other than by means of crawler tractor or rubber-tired skidder shall be employed only with the advance approval of the Timber Sale Officer, and under such conditions and restrictions as may be required. Equipment used for skidding logs shall be equipped with winches and fair-leads. Grapple skidding equipment may be used only with the advance approval of the Sale Officer.

The locations of all existing skid trails to be reused and new skid trails to be constructed shall be flagged by the Timber Operator at least two weeks prior to their intended use, failure to do so by the LTO may result in unnecessary delay in harvesting. Timber Sale Officer will be notified when an area has been flagged for skid trails and landings and location approval by the Sale Officer is required prior to use. If timber felling substantially obliterates skid trail flagging, the Timber Operator shall reflag the locations of approved skid trails prior to their construction or reuse. Heavy equipment shall not be operated within cable areas, equipment exclusion zones, or equipment limitation zones unless their use is in compliance with the Timber Harvesting Plan and approved by the Sale Officer.

- d. The width of tractors or other equipment used for skidding purposes shall not exceed 10 feet 6 inches without written permission of the Sale Officer. Rubber-tired equipment shall not be operated off of approved skid trails and truck roads. Tracked equipment shall not be operated off of approved skid trails or roads unless specifically authorized in each case by the Sale Officer.
- e. Minimum distance permitted between new skid trails will be 100 feet measured along the surface of the ground unless specifically waived in each case by the Sale Officer.

At all times of the year, erosion control structures shall be installed on all skid trails and temporary or seasonal truck roads within 30 days of completion of their use, or at the end of the day if the U. S. Weather Service forecast is a "chance" (30 percent probability or more) of rain before the next working day, or at any time that the equipment needed to install such structures leaves the sale area.

The Timber Sale Officer may suspend timber operations in whole or in part when environmental damage may result from the operation of equipment in logging or hauling the timber included in this Agreement. Operations shall not resume until approval is given by the Sale Officer.

- f. No unnecessary damage shall be done to regeneration, hardwoods, and leave trees. To the greatest extent feasible, leave trees greater than 12 inches DBH shall not have bark torn back from the bole of the tree by log skidding equipment, whether by ground-based or skyline yarding equipment. Leave trees severely damaged in logging, as described in the Timber Harvesting Plan, shall be cut and paid for, if so required by the Timber Sale Officer. Trees specifically marked for leave, and all unmarked trees in watercourse and lake protection zones, shall be protected to the fullest extent possible.
- g. Each merchantable tree that is felled shall be bucked to log lengths, limbed to the 6-inch top, and the top bucked at the time of felling. This requirement shall apply to marked trees and also to any unmarked trees felled for safety reasons, in clearing for road or landing construction, as directed by the Timber Sale Officer for cutting of damaged trees, or as otherwise necessary for the conduct of harvesting operations.

All slash created by timber operations within 100 feet of permanent and seasonal roads including State Highway 20 that have not been designated by the Timber Sale Officer to be blocked to vehicle passage shall be lopped to the extent that no portion shall remain over 30 inches above the ground. Prior to October 15 of each operating season, and concurrent with lopping activities conducted after that date, slash and other logging debris shall be removed from truck road surfaces, cut banks, ditches and berms, and from the inlets and outlets of culverts, unless otherwise directed by the Timber Sale Officer.

- h. To reduce fire hazards, concentrations of slash and logging debris created by the logging operations around landings or located within the sale area shall be piled and isolated for burning as specified by the Timber Sale Officer; or, where designated, landing slash shall be placed to block skid trails where they lead onto truck roads or landings, or shall be spread along skid trails and packed by dozer track to reduce erosion or chipped and spread on road and landing surfaces. Waste piles shall be kept substantially free of soil. On slopes greater than 20% where piles are to be burned, they shall be isolated by building a 10-foot wide fire line to

mineral soil using hand tools. On slopes of 20% or less a dozer may be used to build the fire line. Fire lines shall be waterbarred at the time of construction.

Where slash is piled for burning, the PURCHASER shall provide a sufficient quantity of 80 lb water resistant kraft paper and shall cover a minimum 10-foot by 20-foot section near the center of each pile, weighting the paper adequately to hold it in place during windy weather. The purchaser shall be responsible for burning piles including obtaining permits and paying permit fees.

In order to utilize wood residues and reduce fire hazards, logging wastes on landings on permanent and seasonal roads shall be segregated into large materials which can be utilized by firewood cutters, and other wastes such as bark, branches, etc. For the purposes of this section, material at least 8 inches in diameter and 6 feet in length shall be considered suitable for firewood. On completion of use of each landing, firewood material shall be placed in a stable position where it can be reasonably utilized by firewood cutters.

- i. Section corners, quarter section corners, meander posts and bench marks shall not be destroyed, defaced or removed to another place, nor shall any witness trees be cut or scarred. Should corners, meander posts or bench marks be accidentally destroyed, the PURCHASER shall be responsible for their replacement by a licensed land surveyor, and all notes, plates or records shall be delivered to the STATE for its approval and files.
- j. Timber to be harvested in the area designated for cable logging on the attached timber sale map (Exhibit A) shall be yarded using a standing, live or running skyline system which meets the following requirements:
 - (1) Holds the skyline carriage stationary until logs are yarded laterally to the skyline corridor.
 - (2) Can yard laterally a distance of at least 100 feet perpendicular to the skyline corridor.
 - (3) Supports logs clear of the ground as the carriage moves along the skyline when logs are above Class I or II watercourses and, to the greatest extent feasible, within Class I or II Watercourse Lake Protection Zones to avoid unnecessary damage to riparian soil and vegetation. In other locations, logs shall be yarded with at least one end suspended, provided logs follow directly behind the skyline carriage.
 - (4) Is capable of yarding for a slope distance of approximately 1,800 feet from the landing, and which can reach a slope distance of approximately 2,200 feet to the tailhold.
 - (5) Can be used to pull trees against their lean.

The practice of tight-lining to move yarder lines to their next position shall not be used.

The locations of all cable corridors shall be flagged by the Timber Operator for approval by the Timber Sale Officer prior to rigging. The distance between corridors shall not be less than 200 feet at the back of the cable road without approval of the Sale Officer. Except in the Watercourse and Lake Protection Zone, unmarked trees within approved yarder cable corridors may be felled before rigging and yarding, but not to exceed a pre-cut corridor width of 10 feet as determined by the centerline of the entire corridor from the yarder location to the tailhold, or wider if approved in advance in each case by the Sale Officer. Within the Watercourse and Lake Protection Zone, only those trees which directly interfere with the movement and safe operation of yarding cables may be cut. Trees may not be cut within a WLPZ of a Class I watercourse. The Sale Officer may specify that such corridor trees felled within the WLPZ be left on the ground, and if provided for in the Timber Harvesting Plan, that they be felled towards or across the watercourse. Trees leaning into or over the corridor may be felled only if they jeopardize the safety of the operation. Unmarked trees removed from the yarder cable corridors shall be logged and paid for at the same rate as marked timber. Trees pulled over during cable logging operations shall be bucked to log lengths, with the roots and top removed, before yarding.

All rigging shall be slung on stumps as far as practical. With the advance approval of the Sale Officer, leave trees may be used as spar trees or felled to provide suitable stumps for rigging purposes, provided that the merchantable timber in such trees shall be paid for by the PURCHASER in full at the rate set forth in Section 1. Spar trees shall be felled following their use as spar trees except where not required by the Sale Officer. With advance approval, the PURCHASER may utilize fabric straps on standing trees in lieu of cable straps for tail hold, guy anchor, or spar tree rigging, where such use of standing trees is in compliance with applicable safety regulations.

The PURCHASER may be required to rig tail trees or lift trees to overcome difficult deflection situations.

Any use of tractors in the area designated for Skyline Yarding shall have prior written approval of the Sale Officer, and must be provided for in the Timber Harvesting Plan. Throughout the sale area, red and white striped flagging marks the limit beyond which heavy equipment may not travel without approval. These limits are shown on the attached map (Exhibit A) and when mapped next to a road or landing the limits which heavy equipment may not travel is the road or landing.

- k. The PURCHASER and PURCHASER's agents may post temporary signs in order to display on-site messages (e.g. haul route mile posts, CB channel, etc.). Signs shall be removed once their

function is completed, and in all cases before the term of this Agreement. No messages are to be painted on any tree, rock, stump, or other permanent feature.

- l. Any flagging used by the PURCHASER in the sale area shall correspond to the table of flagging colors in the Timber Harvesting Plan, or shall otherwise be approved by the Timber Sale Officer.
- m. At any time that cable lines cross any Forest road, including roads within the sale area, the PURCHASER shall place warning signs to notify traffic of the location of the lines, and shall block the road or shall have a person stationed on the road to control traffic when lines are being raised or lowered, or when cable road changes are being made. As directed by the Timber Sale Officer, when such roads might be used by other than the PURCHASER or the Sale Officer, the PURCHASER shall either block the road from both sides or provide a flag-person for traffic control.
- n. The PURCHASER's Licensed Timber Operator shall be responsible for maintenance of erosion controls on all skid trails and truck roads used by that Operator until the work completion report for the Timber Harvesting Plan has been approved by the Director of the Department of Forestry and Fire Protection.
- o. As called for by the Timber Harvesting Plan or by Department of Fish and Game stream alteration permits, the PURCHASER shall provide and apply seed and straw or slash mulch for erosion control purposes. In addition, bare soil associated with equipment disturbance within WLPZs and ELZs that exceed 100 square feet are to be mulched to achieve at least 95% coverage to a minimum depth of four inches.
- p. The PURCHASER shall provide and use trash cans for papers, cans, oil filters and other debris. Broken chokers, wire rope and other debris shall be removed and all trash shall be disposed of at a public disposal facility.

Within 100 feet of any truck road or log landing, human waste shall be buried immediately at a depth of at least 12 inches. Human waste shall not be deposited within any Watercourse and Lake Protection Zone or any Class III Watercourse Equipment Limitation Zone.

11. The PURCHASER shall cut all and only those trees designated for cutting. No timber shall be removed from the State Forest until scaled or released by the Timber Sale Officer.

Merchantable timber designated for cutting by the Sale Officer for the construction of landings, bridges, or roads, or for the reconstruction, rehabilitation, or improvement thereof, or for development of rock quarries, within the sale area or for access thereto, shall be paid for at the rate set forth in Section 1 of this Agreement.

12. It is agreed that because of the effect upon the State Forest land as a whole and upon its future productivity and because of the nature of the case, it will be extremely difficult and impractical to fix the actual injury to the STATE by the following type of breaches of this Agreement by the PURCHASER:

- a. The failure to remove all merchantable material designated for cutting as agreed herein; and
- b. The loss of merchantable timber from fire, or from other injury caused by the PURCHASER or which the PURCHASER might have prevented and by the terms of this Agreement the PURCHASER is required to prevent; and
- c. The cutting or severely damaging by logging of leave trees as agreed herein.

And it is further agreed that by reason of such extreme difficulty and impracticability the PURCHASER shall pay to the STATE for such merchantable material the PURCHASER so fails to remove, and for merchantable material so lost or damaged, at double the rate hereinbefore set forth, provided that such payments shall not release the PURCHASER from liability for any damage suffered by the STATE in addition to the value of said trees so not removed or lost or cut or damaged as aforesaid shall be regarded as liquidated damages. In cases of occasional injury as described above and involving small amounts of material only, the Timber Sale Officer will use discretion and judgment in determining whether any breach of contract has occurred within the meaning of this paragraph.

13. All telephone lines, ditches, pipelines, water developments, power lines, and fences; and all structures, and improvements located within or immediately outside the exterior boundaries of the sale area, shall be protected so far as possible in logging operations, and if damaged, shall be repaired immediately by the PURCHASER at PURCHASER's expense; and the Timber Sale Officer may, when it is necessary, require the PURCHASER to move or cause to have moved, any such lines or fence from one location to another.

Roads shall at all times be kept free of logs, slash and debris resulting from the PURCHASER'S operations hereunder. Any road used by the PURCHASER in connection with this sale that is damaged through such use shall promptly be restored by the PURCHASER to its original or better condition at the PURCHASER's expense.

14. Logging roads, skid trails, bridges, watercourse crossings, and landings shall be constructed in a manner consistent with the goals of good forest management. Operations in or near sensitive or critical areas will be reviewed and approved by the Timber Sale Officer. The Sale Officer will use whatever means are necessary to insure that operations conform to the approved specifications.

- a. Roads and landings to be constructed or reconstructed by the PURCHASER shall be built and maintained in accordance with applicable Forest Practice rules. Except where more specific instructions are given elsewhere in this Agreement or in the

Timber Harvesting Plan, roads and landings shall be constructed to the following specifications:

- (1) Cut and Fill Slopes: Normal fill slopes will be 1½:1 minimum; normal cut slopes will be ½:1, or as determined on a site specific basis by the Timber Sale Officer. In solid rock, and in construction of temporary roads, cut slopes may be steeper. In localized unstable soils, slopes shall be flattened as determined by the Sale Officer, but not to exceed 2:1.
- (2) Compaction: Structural fill shall be compacted by dozer track in lifts not to exceed eight (8) inches in depth, or by compactor in lifts not to exceed twelve (12) inches in depth. Compaction shall be equal to or greater than the natural state of the soil or a minimum of seventy (70) percent relative degree of compaction. Woody material shall not be deposited in fills.
- (3) Width: The standard roadbed width for straight road sections shall be 14 feet, including a one-foot shoulder on each side of a 12-foot traveled surface, with additional width on curves as needed to allow passage of log trucks. Roadbed width is measured from the base of the cut slope to the top of the fill slope. The maximum width allowed on minimum-radius switchbacks is 20 feet. Excavation shall be limited to that necessary to construct the minimum road width. New roads constructed wider than these standards shall be narrowed by pulling back excess fill or sidecast and placing it at locations designated by the Timber Sale Officer. Normal spacing for turnouts is 1,000 feet.
- (4) Radius of Curvature: 50 feet minimum.
- (5) Construction Method: On side slopes 50% and less roads shall be constructed with balanced cut and fill volumes. On side slopes exceeding 50%, new roads shall be full bench construction with no fill using an excavator and dump truck to end haul spoil material. Spoils shall be end hauled to locations where slopes are less than 30% and either incorporated into the road prism or piled and compacted with tracks and shaped to promote drainage. No spoils created during road construction shall be located in any WLPZ or ELZ. Roads shall not be constructed as through-cut sections unless approved by the Timber Sale Officer. Through-cut sections shall be minimized, and shall in no case be longer than the standard waterbar spacing unless provision is made for disposal of road surface water.
- (6) Surface Drainage: Unless otherwise specified, roads shall be constructed and maintained with a 2-5% outslope and without a berm or inside ditch. The road surface shall be insloped or bermed only where needed to direct water to a drainage facility or away from a sensitive area. Where grade is 7% or less, permanent and seasonal

roads shall have rolling dips incorporated into their running surface during their construction at locations proposed by the PURCHASER and approved by the Timber Sale Officer. Where grade of permanent or seasonal roads is more than 7%, waterbreaks or other suitable forms of water dispersal shall be installed at locations as specified or approved by the Timber Sale Officer, upon completion of use of the road for log hauling, but prior to final road grading. Spacing between rolling dips shall be consistent with the waterbreak spacing requirements of the Forest Practice Rules and the Timber Harvesting Plan. Rolling dips shall be constructed in accordance with the attached diagram, Exhibit C.

- (7) Landings: The locations and extent of all new landings shall be approved in advance by the Sale Officer.
- b. Where the Timber Sale Officer has set construction stakes or marked trees or placed flagging to establish road centerlines and grades or cut and fill markers for road work, culverts, erosion control or other necessary structures, these markers shall constitute the field control by and in accordance with which the PURCHASER shall govern and execute the road or other work as portrayed on such road plans, profiles, or specifications furnished the PURCHASER.
 - c. Prior to excavation for new road or landing construction, trees and other live woody vegetation greater than two inches dbh within the designated right-of-way shall be felled. Any tree boles or portions thereof six inches in diameter and eight feet in length, or larger, whether merchantable or not, shall be limbed, cut to lengths not exceeding the maximum log length allowed in this Agreement, and removed to landings or to other disposal sites approved by the Timber Sale Officer. Remaining limbs, tops, slash and other woody debris shall not be mixed with or buried by excavated material, but may be windrowed below the toe of the fill or sidecast slope.

All new road construction shall be done by using a hydraulic excavator, or by using a bulldozer equipped with a square or semi-U blade. Provisions elsewhere in this Agreement may further specify the equipment to be used. No material or debris removed from the right-of-way shall be deposited in watercourses or drainage channels. After the road bed has been substantially completed, it shall be given appropriate surface drainage as specified in Paragraph 14.a(6) above, or as otherwise directed by the Sale Officer. Prior to its use as a log truck access road it shall be shaped and dressed with a grader in conformance with all finish lines, grades and typical cross sections or specifications furnished by the STATE. Side slopes shall be finished in a neat manner with no undercuts or overhanging edges.

- d. Culvert or drainage facility material needed for unanticipated road drainage structure installations or to lengthen or enlarge designated installations will be provided by the STATE and shall be installed by the PURCHASER.

The PURCHASER shall install a metal fence picket culvert marker at the head of each installed culvert, and at the heads of existing unmarked culverts on appurtenant haul roads, in accordance with the instructions of the Sale Officer.

All inlets and outlets of existing and installed culverts on any roads used or constructed by the PURCHASER shall be kept open to their full capacity at all times. The PURCHASER shall replace or repair any culverts, downspouts, or culvert location stakes lost, damaged, or destroyed by the PURCHASER's operations. All old culvert and debris resulting from culvert replacement shall be crushed and disposed of by the PURCHASER at a public disposal site.

- e. The PURCHASER shall protect existing watercourse crossing structures on State Forest land from any damage that might be caused by PURCHASER's equipment and/or loads in the performance of this Agreement. Any bridge or culvert used by the PURCHASER on State Forest land in connection with this sale that is damaged or injured through such use shall promptly be restored by the PURCHASER to its original condition at the PURCHASER's expense. STATE bridges and culverts are designed for highway loads unless load signs are posted.
- f. All Forest roads and landings which are used by the PURCHASER for decking, loading or hauling logs or for other operations conducted under this Agreement, including roads used by timber fallers or rigging crew, and roads used for hauling rock or water for use on the sale area, shall be maintained by the PURCHASER in serviceable condition during and immediately following periods of use at the PURCHASER's expense.

Road or landing use shall be discontinued if firm, stable road and landing surfaces acceptable to the Timber Sale Officer cannot be maintained, or if trucks cannot operate under their own power, and the PURCHASER shall take measures necessary to improve the condition of the road or landing. These measures may include stabilizing the road or landing surface with rock and geotextile fabric, or postponing further use of the road or landing until a period of drying allows the surface to become firm and stable. Saturated loose material and fines that accumulate on the road or landing surface shall not be bladed off to permit hauling without specific approval from the Sale Officer in each case. Such material must be bladed back onto the road or landing after it has dried. Additional wet weather road use restrictions as are required in THP Item 18.

Truck roads shall be treated for dust control in one or a combination of the following ways:

- (1) Truck roads will be watered daily and graded as necessary to maintain a good road surface as designated by the Timber Sale Officer. Watering shall be done in the evening or early morning so that water penetrates the

road surface before hauling begins, and shall be repeated during the day if necessary to maintain a stable road surface. Water drafting for dust abatement shall be done according to the guidelines specified in the THP pages 28-36.1 and pertinent 1600 Agreement.

- (2) Truck roads may be treated using lignin or other surfacing chemicals approved by the Timber Sale Officer. Treatment must be in accordance with manufacturer's specifications and reapplied as necessary to maintain a dust-free environment. Any ruts or chuck holes that develop on said roads after surfacing shall be immediately removed by grading or patching. If the PURCHASER is unable to maintain a good road surface by this method, the Sale Officer by written notice may require the PURCHASER to maintain the roads in accordance with paragraph 14.f.(1) of this Agreement.

Maintenance work shall also be done within 15 days of the end of hauling operations on each road (each season), and immediately on completion of hauling on any road after October 15. Maintenance shall include outsloping or installation or improvement of waterbars, rolling dips, or other road surface drainage facilities as specified by the Sale Officer; final watering and grading to remove ruts and other irregularities that would prevent adequate drainage of the road surface; removal or breaching of berms; and a final clearing of drainage ditches and culvert inlets and outlets as necessary to insure proper functioning of the road drainage system.

Where more than one timber sale must use the same road at the same time, the PURCHASER of the sale with the largest estimated timber volume to be removed over that road during the current operating season, as determined by the STATE prior to the start of timber operations, shall have the primary responsibility for routine maintenance (watering and grading) of those roads being used simultaneously, and shall also be responsible for any additional unanticipated work needed to maintain a firm, stable road surface or to provide proper road drainage. The last user of each road each year shall be responsible for the final road maintenance required at the end of the operating season, as described in the paragraph above. Joint road users are encouraged to share routine road maintenance burdens equitably on a basis proportional to actual use. When only one party is using a road then that party is solely responsible for all road maintenance requirements.

- g. The PURCHASER shall construct and maintain approximately 1.76 miles of new seasonal truck road as indicated on the attached map (Exhibit A) to conform to provisions in the Timber Harvesting Plan and to road specifications set forth in paragraphs 14.a through 14.f of this Agreement.
- h. The PURCHASER shall obtain a permit for, construct and maintain one encroachment to Highway 20 as indicated on the attached map (Exhibit A) to conform to provisions of

California Department of Transportation Road Connections and Driveways, Appendix J, Standard Driveway and Commercial Approach for Rural Areas with Unimproved Frontage on Conventional State Highways (Exhibit F). Application for the encroachment permit is the PURCHASER'S responsibility, including associated fees, cost of required engineered plans and cost of any surveying work required to obtain engineered plans. The PURCHASER shall construct the encroachment in conformance with the California Department of Transportation encroachment permit.

- i. The PURCHASER shall construct one standard gate at new encroachment to Highway 20 as indicated on the attached map (Exhibit A). Gate construction shall conform to the attached gate plan (exhibit G).
- j. The PURCHASER shall provide, haul, place and compact up to 320 cubic yards of 1"-3" coarse crushed rock for road stabilization at locations in the sale area or on appurtenant roads. The PURCHASER shall provide, haul, and place up to 119 tons of 6"-18" Angular Rock for stabilization and armoring at locations in the sale area or on appurtenant roads. The placement of rock is outlined in the attached culvert and miscellaneous road work list (Exhibit H). Placement of any excess rock will be determined the Timber Sale Officer.
- k. Timber hauled from 14 Gulch shall access the public highway system via Road 70 north to Highway 20, or via newly constructed roads as indicated on the attached map (Exhibit E) to Highway 20.
- l. The STATE may, from time to time, schedule organized public events which require weekend or holiday use of roads used by the PURCHASER within or appurtenant to the sale area. With a minimum of two weeks notice from the STATE, the PURCHASER shall make specified roads available for such use by removing down timber and slash from the road surface, positioning equipment off of the road, and otherwise making the road passable for the designated use.
- m. The PURCHASER shall haul, move, pile, or otherwise provide slash material from the sale area for chipping, and shall chip and spread the material to cover approximately 800 linear feet of road in slash chips to a depth of 3 inches or greater with 95% coverage. The chip material shall lie on top of the road surface and not be mixed with road bed or spoil material. The Sale Officer shall designate the section of road to be covered in wood chips.

15. No permanent structures shall be allowed on State Forest land. Temporary structures shall be kept to a minimum necessary for the logging operation and shall be maintained at PURCHASER'S expense. They shall be located, built to standards, and operated as may be required by the Timber Sale Officer to prevent the pollution of the water in any watercourse. Outhouses and toilets shall be constructed and maintained so as to prevent, so far as possible, the breeding of flies or the development of unsanitary conditions. The PURCHASER shall abide by all

Health and Safety Laws of the State. All structures shall be removed when cutting is completed or the sale terminated, and the grounds cleaned up to the satisfaction of the Sale Officer.

16. During the time that this Agreement remains in force, the PURCHASER shall independently of STATE effort do all that can be done to prevent and suppress forest fires on the sale area and shall require all employees, agents, contractors, subcontractors, and employees of contractors and subcontractors to do likewise.

Unless prevented by uncontrollable circumstances, the PURCHASER shall place all employees, agents, contractors, subcontractors, and employees of contractors and subcontractors, and their equipment at the disposal of any authorized representative of the Director of Forestry and Fire Protection for the purpose of fighting forest fires on or adjacent to the State Forest, with the understanding that where fire fighting services are not rendered on the sale area of the PURCHASER, payment to the PURCHASER, and to employees, agents, contractors, subcontractors, or employees of contractors and subcontractors of the PURCHASER by the STATE for such services shall be made at standard rates established by the Director of Forestry and Fire Protection where such services are specifically ordered or requested by the Department of Forestry and Fire Protection Officer in charge of the fire; provided further, however, that no payment shall be made by the STATE to the PURCHASER if said fire occurred or spread as the result of violation of law, Forest Practice Rules, or actionable negligence attributable to the PURCHASER, or to employees, agents, contractors, subcontractors, or employees of contractors and subcontractors of the PURCHASER.

In cases where fires occur upon the sale area or spread across the sale area from an adjacent area, the PURCHASER will bear all expenses incurred in action taken upon the fire prior to the arrival of the Department Officer in charge of the fire. Upon arrival of the Department Officer in charge of the fire the PURCHASER, and employees, agents, contractors, subcontractors, or employees of contractors and subcontractors of the PURCHASER, may be reimbursed by the STATE for fire fighting services rendered by them in response to specific orders and requests made by the Department Officer in charge of the fire at the rates provided for in the second paragraph of this section; provided further, however, that when the fire has been surrounded by control lines, the PURCHASER will assume all costs of patrol until the fire is declared to be out by the CAL FIRE Battalion Chief in charge of the fire protection in the area and provided further, that in the event said fire has occurred or spread as a result of violation of law, Forest Practice Rules, or actionable negligence of the PURCHASER, or employees, agents, contractors, subcontractors, or employees of contractors and subcontractors of the PURCHASER, then the PURCHASER shall not be reimbursed in any amount by the STATE for services rendered by PURCHASER, or by employees, agents, contractors, subcontractors, or employees of contractors and subcontractors of the PURCHASER, in control of the fire.

When the STATE becomes legally obligated by contract expressed, implied or otherwise, to make payment for any fire fighting services under the second and third paragraphs of this section and the said fire occurred or spread as the result of violation of law, Forest Practice Rules, or negligence attributable to the PURCHASER, or to employees,

agents, contractors, subcontractors, or employees of contractors and subcontractors of the PURCHASER, said PURCHASER shall reimburse the STATE for that payment.

The provisions of this section shall not be construed as relieving the PURCHASER of fire suppression costs for which the PURCHASER is otherwise liable under State law.

17. In addition to the required complement of fire tools, during the period specified by law, the PURCHASER shall have readily available to the sale area for fire suppression purposes a "water wagon" or similar self-propelled vehicle of at least 1,000 gallons capacity which shall be maintained in good operating condition. This unit shall be kept filled to capacity except when in actual physical use on the logging operation and equipped with at least 150 feet of serviceable 1½ inch fire hose with National Standard thread fittings and a serviceable nozzle for said hose; and further, said unit shall be equipped to draft water from a stream or pond as well as to pump water from the tank mounted on the vehicle.

18. All timber included in this Agreement shall remain the property of the STATE until paid for in full by the PURCHASER in the manner hereinbefore set forth, provided that the risk of loss thereof, by fire or otherwise, after operations have begun with reference to the particular logging area, shall be on the PURCHASER.

19. At all times when construction or logging operations are in progress, the PURCHASER shall have a representative readily available to the area of such operations, who shall be authorized to receive, on behalf of the PURCHASER, any notices and instructions given by the STATE in regard to performance under this Agreement, and to take such action thereon as is required by the terms of this Agreement.

20. The PURCHASER agrees to indemnify and save harmless the STATE, its officers, agents, and employees, from any and all claims and losses accruing or resulting to persons engaged in or about the performance of this Agreement, or to third persons who may be injured or damaged by the PURCHASER or PURCHASER's agents, in the performance of this Agreement except negligent acts of the STATE. The PURCHASER shall provide necessary Workers' Compensation Insurance at the PURCHASER'S own cost and expense.

21. The PURCHASER, in all activities under or pursuant to this Agreement, as well as in handling, reselling or otherwise dealing with respect to the timber and other material realized by the PURCHASER by reason of this Agreement, whether such timber and other material is in its original form or in a changed form, agrees to comply in all respects with all lawful acts, rules, regulations and directions of any legislative, executive, administrative or judicial body or officer exercising any power of regulation or supervision with respect to such matters and whether arising out of the provisions of this Agreement or otherwise.

The PURCHASER shall comply with all applicable State Safety Orders, Title 8, California Code of Regulations.

22. No provision of this Agreement shall authorize the PURCHASER or PURCHASER's agents or servants to act as an officer, agent, or employee of the STATE, except as specifically required in Section 10 of this Agreement where the Timber Operator acts as a limited agent of the STATE as the Timber Harvesting Plan submitter only for the purpose of certifying compliance with the Forest Practice Rules and the Timber Harvesting Plan.

23. This Agreement is entered into by the STATE in reliance upon the knowledge and skill of the PURCHASER, and is not assignable by the PURCHASER either in whole or in part except on prior written consent by the STATE.

24. Time is the essence of each and all of the provisions of this Agreement.

25. If the PURCHASER breaches any of the provisions of this Agreement, the STATE may serve written notice of such breach upon the PURCHASER, and thereupon the STATE may suspend the operations of the PURCHASER hereunder until such time as such breach is remedied, and if such breach is not remedied within ten days, the STATE may, at its option, without further notice, terminate this Agreement.

26. As further guarantee of a faithful performance of the conditions of this Agreement, the PURCHASER delivers herewith a faithful performance bond, or approved alternate form of security, satisfactory to the STATE in the sum of twenty thousand dollars (\$20,000). Upon satisfactory completion of all timber harvesting activities, the PURCHASER may request a one-time reduction of this security to an amount determined by the STATE to be sufficient to cover all remaining provisions of this Agreement.

Alternate forms of security in lieu of a performance bond are:

- a. Certificate of deposit with the California Department of Forestry and Fire Protection as payee, issued by a bank or similar financial institution which is a member of the Federal Reserve System or is insured by the Federal Deposit Insurance Corporation.
- b. Irrevocable letter of credit issued by a bank or financial institution which is a member of the Federal Reserve System or is insured by the Federal Deposit Insurance Corporation.

All bonds, letters of credit, or certificates of deposit, must be in a form acceptable to the STATE.

The PURCHASER agrees that all monies deposited and the faithful performance bond, or security, delivered under this Agreement may, upon failure on the PURCHASER's part to fulfill all and singular the requirements herein set forth or made a part hereof, may be retained by the STATE to be applied as far as may be to the satisfaction of the PURCHASER's obligations assumed hereunder, without prejudice whatever to any other rights and remedies of the STATE. As soon as security for the performance of the terms of this Agreement or provisions for the settlement of claims or for damages incident thereto is no longer necessary to be retained or made, any balance of the initial deposit

that may be left after applying it to any payment due or owing will be returned to the PURCHASER.

The PURCHASER shall be solely responsible for filing reports with the State Board of Equalization and payment of the timber yield tax levied on timber cut under this Agreement as provided by the Z'Berg-Warren-Keene-Collier Forest Taxation Reform Act, Statutes of 1976, Chapter 176. The PURCHASER'S yield tax payments shall not be credited in any way for timber cut or other obligations of this Agreement.

27. By signing this contract, the PURCHASER swears under penalty of perjury that no more than one final unappealable finding of contempt of court by a federal court has been issued against the PURCHASER within the immediately preceding two-year period because of the PURCHASER'S failure to comply with an order of a federal court which orders compliance with an order of the National Labor Relations Board.

28. Upon mutual consent, either party may amend this contract in writing.

29. The PURCHASER understands that his/her performance under this contract will be evaluated by the STATE.

30. If contract involves the expenditure of public funds in excess of \$10,000, contracting parties shall, in accordance with Government Code section 8546.7, be subject to examination and audit of the Bureau of State Audits for a period of three years after final payment under the contract. Examination and audit shall be confined to those matters connected with performance of the contract including, but not limited to, cost of administering contract.

31. During the performance of this contract, PURCHASER and subcontractors involved shall not unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave. PURCHASER and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. PURCHASER and subcontractors shall comply with provisions of the Fair Employment and Housing Act (Government Code, Section 12900, et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990(a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this contract by reference and made a part hereof as if set forth in full. PURCHASER and subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have collective bargaining or other agreement. PURCHASER shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

32. The PURCHASER certifies under the penalty of perjury under the laws of the State of California to have, unless exempted, complied with

the nondiscrimination program requirements of Government Code Section 12990 and California Code of Regulations, Title 2, Section 8103.

33. This contract is complete and in force only after all STATE approvals are obtained.

IN WITNESS WHEREOF this Agreement has been executed by and on behalf of the parties hereto, the day and year first above written.

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION

(Name of PURCHASER)

By _____

By _____

(Printed name)

(Title)

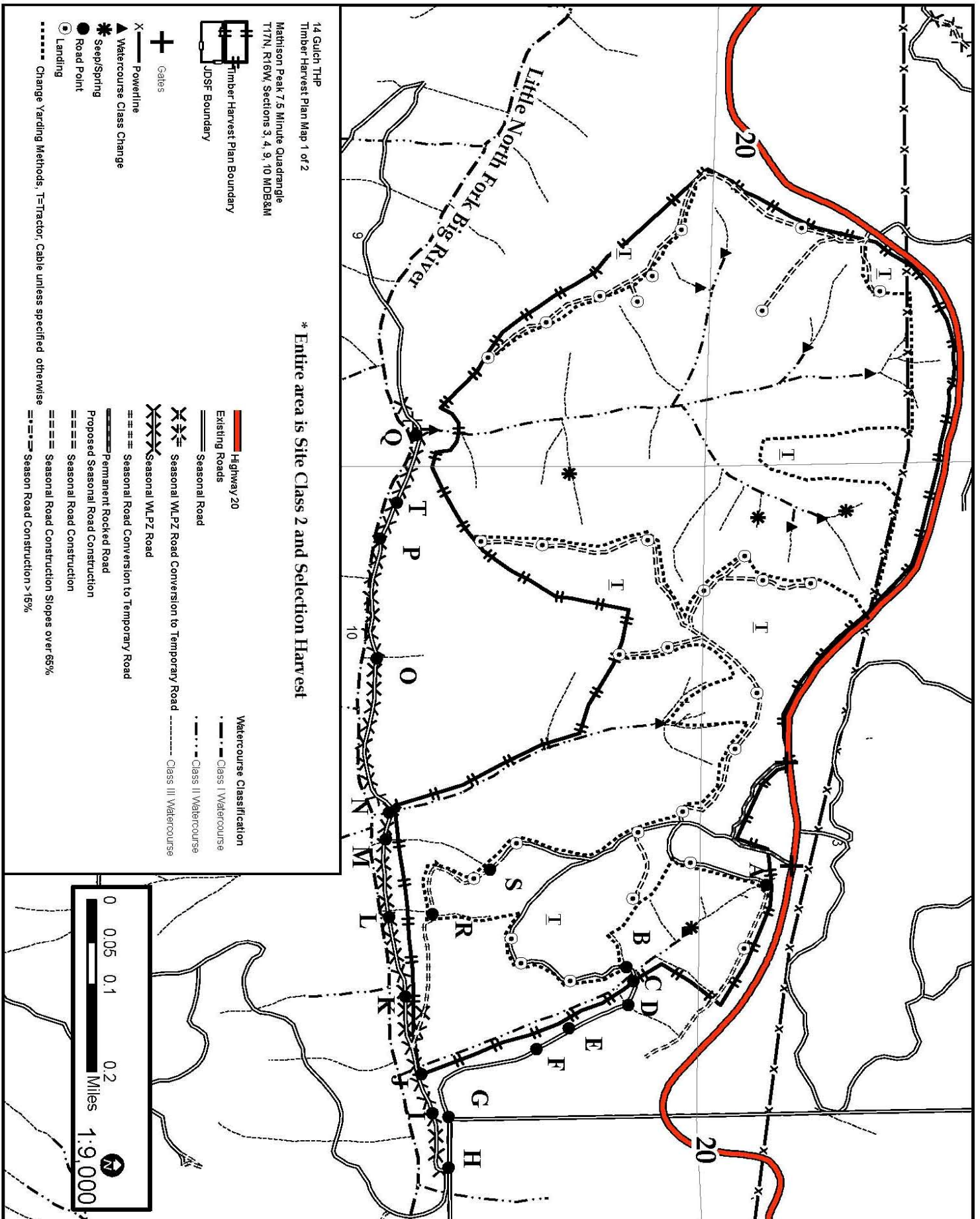


Exhibit B

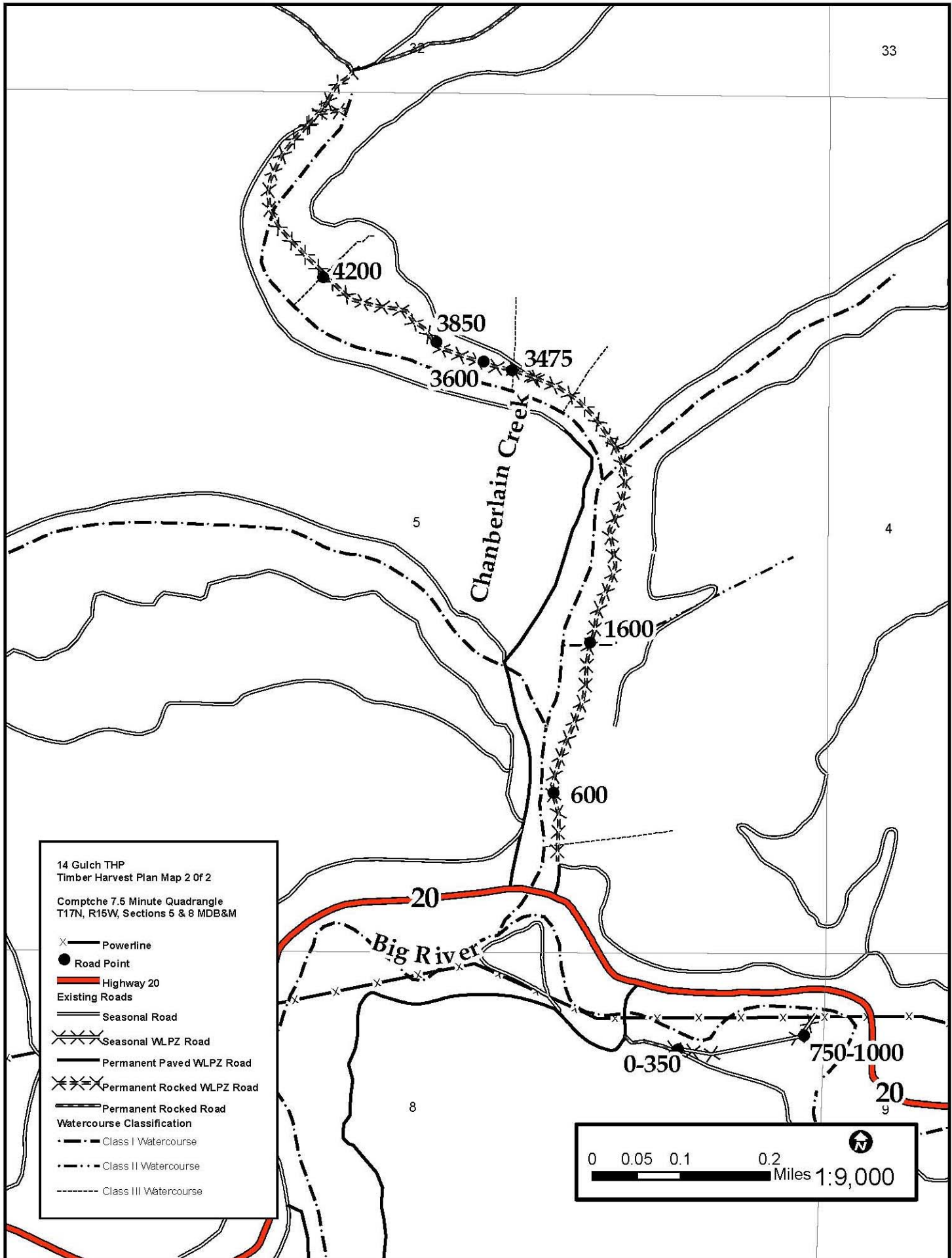


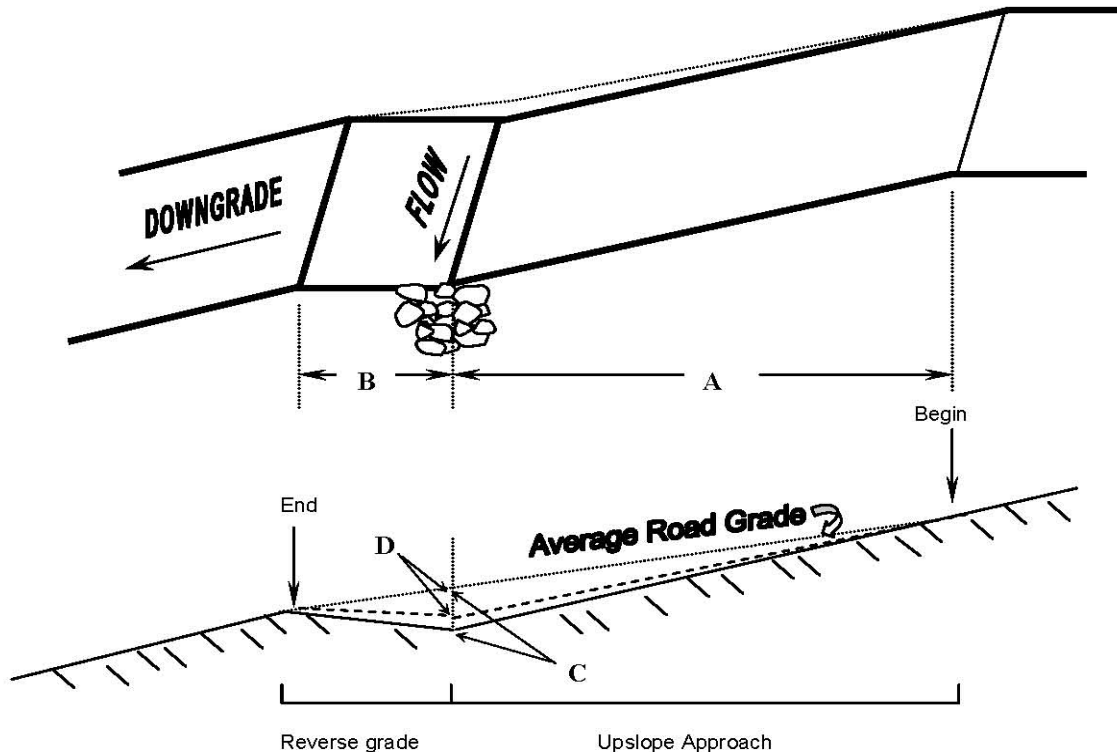
Exhibit C

ROLLING DIP INSTALLATION GUIDELINES

A rolling dip is a smooth shallow ditch or depression that is at least 6" in depth and should be constructed at an angle of 45 to 60 degrees from the centerline of the road (can be nearly perpendicular). The cross grade should be at least 1 percent greater than the grade of the road. Rock riprap or down-drain flumes may be needed to prevent erosion on outsloped roads (see diagrams below).

Dips should be constructed deep enough into the road subgrade so that traffic and subsequent road grading will not obliterate them. Their length and depth should provide the needed drainage, but not be a driving hazard.

ROLLING DIP DIMENSIONS				
Road Grade (%)	Upslope approach (distance from up-road start of rolling dip to trough in feet)	Reverse Grade (distance from trough to crest in feet)	Depth below average road grade at discharge end of trough (ft)	Depth below average road grade at upslope end of trough (ft)
	A	B	C	D
< 6	55	15-20	0.9	0.3
8	65	15-20	1.0	0.2
10	75	15-20	1.1	0.1
12	85	20-25	1.2	0.1
>12	100	20-25	1.3	0.1



Text and diagrams from W. Weaver and D. Hagans, *Forest and Ranch Roads*, MCRCD, June 1994, pp. 48, 58.

EXHIBIT D**CULVERT AND MISCELLANEOUS ROAD WORK LIST****A. ROAD DRAINAGE AND CULVERTS**

<u>Map Point</u>	<u>Work to be done</u>
A	Using an excavator and tractor, remove existing culvert and remove crossing. If the road will be used past this point install a temporary 18 inch plastic culvert to drain watercourse during operations. Temporary culvert installation will require 60 linear feet of 18 inch culvert and two couplings. Remove the temporary culvert prior to completion or prior to October 15 th of the year of operations. All fill at the site shall be removed, placed on the road surface and used to outslope the road where feasible. Channel side slopes shall be excavated to no greater than 50% slope. Waterbreaks shall be installed on both sides of the crossing with tailouts located no further than 25 feet from the hinge-line of the excavated road prism. Seed and mulch bare mineral soil in the area between the waterbreaks.
B	Using a backhoe or excavator and tractor, install rock armored ford consistent with design criteria found in the THP on pages 17 and 18 and diagram on page 55. Fill dip in road surface with 10-15 cu.yd. of rock 2"-6". Place 10 cu. yd. of rock \geq 12" in keyway and spillway of dip. Install a waterbreak at the flagged location upslope from the rock armored ford. Seed and mulch exposed mineral.
C	Using an excavator and tractor, remove existing culvert and install 40 linear feet of 42 inch corrugated metal culvert, 1 coupling, 1 metal stake for the inlet and a critical dip centered over the culvert. Install culvert at grade of original stream so bottom of outlet is level with stream bed. Armor the inlet with 3 cu. yd. of rock 6-16". Armor the outlet with 3 cu. Yd. of rock 6-16". Seed and mulch bare mineral soil.
D	Using an excavator and tractor, install 70 feet of 30 inch culvert with a mitered inlet, 4 couplings, 1 metal stake for the inlet and critical dip centered over the culvert. Install as close to natural stream grade as possible with inlet slightly below the channel bottom. Culvert length shall extend past fill material and outlet shall be armored with 3 cu. yd. of rock 6-16". Completely fill upslope square channel with 15 cu. Yd. of angular hard competent rock 6-18" to top of the trench upstream to the headwall. Stabilize headwall with 10 cu. Yd. of angular hard competent rock 6-18". Cover side slopes

Map
PointWork to be done

- D (continued from previous page)
with jute netting prior to placement of mulch and seed.
Mulch and seed jute netting and bare mineral soil.
- E Using a backhoe or excavator and tractor, install a rolling dip at flagged location upslope of a cutbank failure. Pull berm and fill material from the rolling dip to 50 feet downslope of the bank failure. Remove overhanging material remaining on rolling dip. Place spoil material on the inside of the road prism, compact with tracts and utilize material to outslope the road. Seed and mulch bare mineral soil.
- F Using an excavator and tractor, install/enhance inside ditch from beginning flagged location to ending flagged location and construct a rocked rolling dip to drain inside ditch. Place 5 cu. yd. of rock, 2-10" in rolling dip. Seed and mulch bare mineral soil.
- G Using a grader or tractor, install inside ditch at flagged location for 60 feet to ditch relief culvert. Seed and mulch bare mineral soil.
- H Using a backhoe or excavator and tractor, maintain waterbreak and pull fill material at outlet. Incorporate material into road prism. Seed and mulch bare mineral soil.
- I Using a backhoe or excavator and tractor, remove ditch relief culvert and install a cross-road drain. Seed and mulch bare mineral soil.
- J Using an excavator and tractor, remove existing culvert and restore the gradient of the watercourse. The top and bottom of channel re-grading is identified with pink flags. A channel ≥ 2.5 feet shall be created at the location. Remove all fill material at the crossing and incorporate into the road prism. Slope channel banks back to approximately 40% from the bed of the channel to the top of the road prism. Incorporate all spoils material into the road prism shaped to promote drainage and packed with tracks. Seed and mulch bare mineral soil.
- K Using a backhoe or excavator and tractor, remove ditch relief culvert and install a cross-road drain. Seed and mulch bare mineral soil.
- L Using an excavator and tractor, restore the gradient of the watercourse. The top and bottom of channel re-grading is identified with pink flags. A channel ≥ 2 feet shall be created at the location. Remove all fill material at the crossing and incorporate into the road prism. Slope channel banks back to approximately 40%

Map
PointWork to be done

- L (continued from previous page)
from the bed of the channel to the top of the road prism. Incorporate all spoils material into the road prism shaped to promote drainage and packed with tracks. Seed and mulch bare mineral soil.
- M Using an excavator and tractor, restore the gradient of the watercourse. The top and bottom of channel re-grading is identified with pink flags. A channel ≥ 2 feet shall be created at the location. The flagged channel alignment contains a slight angle to avoid removing a clump of redwoods. The resulting angle shall be armored with woody material. Remove all fill material at the crossing and incorporate into the road prism. Slope channel banks back to approximately 40% from the bed of the channel to the top of the road prism. Incorporate all spoils material into the road prism shaped to promote drainage and packed with tracks. Seed and mulch bare mineral soil.
- N Using an excavator and tractor, remove existing culvert and restore the gradient of the watercourse. The top and bottom of channel re-grading is identified with pink flags. A channel ≥ 3 feet shall be created at the location. Remove all fill material at the crossing and incorporate into the road prism. This includes material associated with an adjacent skid trail and landing. Slope channel banks back to approximately 40% from the bed of the channel to the top of the road prism. Incorporate all spoils material into the road prism shaped to promote drainage and packed with tracks. Seed and mulch bare mineral soil.
- O Using an excavator and tractor, restore the gradient of the watercourse. The top and bottom of channel re-grading is identified with pink flags. A channel ≥ 1.5 feet shall be created at the location. Remove all fill material at the crossing and incorporate into the road prism. Slope channel banks back to approximately 40% from the bed of the channel to the top of the road prism. Incorporate all spoils material into the road prism shaped to promote drainage and packed with tracks. Seed and mulch bare mineral soil.
- P Using a backhoe or excavator and tractor, remove ditch relief culvert and install a cross-road drain. Seed and mulch bare mineral soil.
- Q Using an excavator and tractor, remove existing culverts and restore the gradient of the watercourse. The top and bottom of channel re-grading is identified with pink flags. A channel tapering from 1.5 feet (at upper flag) to 10 feet (at current location of culverts) shall be created at the location. Remove all

Map
PointWork to be done

- Q (continued from previous page)
fill material at the crossing and incorporate into the road prism. This includes material associated with an adjacent skid trail and landing. Slope channel banks back to approximately 40% from the bed of the channel to the top of the road prism. Incorporate all spoil material into the road prism shaped to promote drainage and packed with tracks. Seed and mulch bare mineral soil.
- R If this road segment is used and water is present install 20 linear feet of 18 inch culvert. If the road segment is used and no water is present maintain a rolling dip. Prior to completion of operations or prior to October 15th of the year of operations the crossing shall be removed regardless of whether the road is used or not. All fill at the site shall be removed, placed on the road surface and used to outslope the road prism. Channel side slopes shall be excavated to no greater than 50% slope. Install a waterbreak on the upslope side of the crossing with tailout located no further than 25 feet from the hinge-line of the excavated road prism. Seed and mulch exposed mineral soil within 25 feet of the crossing.
- S If this road segment is used and water is present install 20 linear feet of 18 inch culvert. If the road segment is used and no water is present maintain a rolling dip. Prior to completion of operations or prior to October 15th of the year of operations the crossing shall be removed regardless of whether the road is used or not. All fill at the site shall be removed, placed on the road surface and used to outslope the road prism. Channel side slopes shall be excavated to no greater than 50% slope. Install a waterbreak on both sides of the crossing with tailouts located no further than 25 feet from the hinge-line of the excavated road prism. Seed and Mulch exposed mineral soil within 25 feet of the crossing.
- T Using a tractor, ramp over cut bank failure and incorporate material into road prism. Seed and mulch bare mineral soil prior to October 15th.
- 600 Using a backhoe or excavator, and tractor remove existing ditch relief culvert and replace with 40 linear feet of new 18 inch plastic culvert, 1 coupling and 1 metal stake for the inlet. Rock disturbed running surface of the road with 5 cu. Yd. of 1-3" crushed rock. Seed and mulch bare mineral soil exposed by operations.
- 1600 Using an excavator and tractor, remove existing culvert and install 60 linear feet of 54 inch culvert with

Map

<u>Point</u>	<u>Work to be done</u>
1600	(continued from previous page) critical dip centered above the culvert, 2 couplings and 1 metal stake for the inlet. Armor the inlet, outlet and lower half of fill with 30 cu. Yd. of 6-18" rock. Armor the remainder of fill with rock or woody debris. Turf reinforcement mat may be used on outboard edge of fill if approved by the timber sale officer. Rock the disturbed running surface of the road with 15 cu. Yd. of 1-3" crushed rock. Seed and mulch bare mineral soil exposed by operations.
3475	Using a backhoe or excavator and tractor, re-align/re-construct channel through road and back into natural channel. Excavate from top to bottom flags and install 40 feet of 30" culvert with critical dip, 1 coupling and 1 metal stake for the inlet. Taper top excavation and armor inlet with 3 cu. Yd. Of 6-10" rock. Lay side slopes back to 50% or natural slopes when feasible. Place woody debris in channel upslope and downslope of culvert. Rock disturbed running Surface of the road with 5 cu. Yd. of 1-3" crushed rock. Seed and mulch bare mineral soil exposed by operations.
3600	Repair crushed inlet of ditch relief culvert. If inlet cannot be repaired pull back fill material at inlet to expose 1-2 feet of culvert length and cut culvert to create a new inlet. Seed and mulch bare mineral soil exposed by operations.
3850	Remove existing culvert and replace with 40 feet of new 18" plastic culvert, 1 coupling and 1 metal stake for the inlet. Rock disturbed running surface of the road with 5 cu. Yd. of 1-3" crushed rock. Seed and mulch bare mineral soil exposed by operations.
4200	Remove existing culvert and replace with 40 feet of 30" mitered culvert, 1 coupling, 1 metal stake for the inlet and a critical dip and pull perched fill material. Armor the outlet of the culvert with 3 cu. Yd. of 6-18" crushed rock. Rock disturbed running surface of the road with 5 cu. Yd. of 1-3" crushed rock. Seed and mulch bare mineral soil exposed by operations.

B. ROAD ROCKING

At map points 0-350 and 750-1000, provide, haul, place and compact the specified quantities of 1"-3" coarse crushed rock to a compacted depth of six inches across 12-foot road width prior to using water drafting location W7. The road shall be shaped and watered before rocking. Provide copies of load receipts within 15 days of delivery to document quantities provided. Refer to THP item #25.

<u>Map Point</u>	<u>Work to be Done</u>
----------------------	------------------------

0-350 Rock approximately 350 feet of road using 158 cubic yards of rock.

750-1000 Rock 250 feet of road using 113 cubic yards of rock.

C. ROAD 70 CONVERSION TO TEMPORARY ROAD

Using a tractor, install cross road drains at locations flagged along WLPZ road segment shown on the attached map (Exhibit A). Flagged locations are designated with one pink and one white flag together. Cross road drains shall be excavated as exaggerated dips 1 foot in depth below the road surface with at least a 2 foot berm on the downgrade side of the drain. The bottom of the cross road drains shall be flat for at least 1 foot to minimize scour. The banks of cross road drains and berm will be no greater than 40% in slope. All bank slopes, berm material and drain bottoms shall be compacted with tracks. No sidecasting or placement of perched fill on outside edge of road shall occur. Seed and mulch bare mineral soil exposed by operations along the entire WLPZ road as shown on the attached map (Exhibit A).

D. Road 70 outsloping

Using a backhoe or excavator and tractor, pull berm and fill material from outboard edge of road and outslope road for 1000 feet at flagged locations. Locations are flagged with one orange and one white flag together with marking indicating beginning and ending of segments to be outsloped. Place fill material on inside edge of road prism and inside ditch. Compact fill with tracks and outslope road. Leave road as outsloped 2-5% with no inside ditch except in specific locations as indicated in the Timber Harvest Plan. Seed and mulch bare mineral soil exposed by operations along the entire WLPZ road as shown on the attached map (Exhibit A).

EXHIBIT E**SAMPLE FORM FOR REPORTING OPERATING COSTS**

Page ____ of ____ for ACTIVITY: _____ AREA or UNIT: _____

PART 1. EQUIPMENT

<u>Equipment Type</u>	<u>No. of Hours Worked</u>	<u>Rate per Hour</u>	Check if *	<u>Total Cost</u>
			<u>With Oper.</u>	
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

PART 2. LABOR

<u>Labor Type</u>	<u>No. of Hours Worked</u>		<u>Rate per Hour</u> *		<u>Total Cost</u>
	<u>Straight</u>	<u>OT</u>	<u>Straight</u>	<u>OT</u>	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

* Labor rates, whether with equipment rates or listed separately, must include state comp insurance, benefits, and other employer costs.

PART 3. MATERIALS, SERVICES, OVERHEAD, ETC.

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit</u>	<u>Total Cost</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Attach additional information as appropriate.

APPENDIX J



Road Connections and Driveways

Worker safety should be considered when determining vertical falsework clearance. Requests for approval of temporary vertical clearances less than 15 feet should discuss the impact on worker safety.

Temporary horizontal clearances less than shown in Table 204.8 or temporary vertical clearances less than 15 feet should be noted in the PS&E Transmittal Report.

To establish the grade of a structure to be constructed with a falsework opening, allowance must be made for the depth of the falsework. The minimum depths required for various widths of traffic opening are shown in Table 204.8.

Where vertical clearances, either temporary or permanent are critical, the District and the DOS should work in close conjunction during the early design stage when the preliminary grades, structure depths, and falsework depths can be adjusted without incurring major design changes.

Where the vertical falsework clearance is less than 15 feet, advance warning devices are to be specified or shown on the plans. Such devices may consist of flashing lights, overhead signs, over-height detectors, or a combination of these or other devices.

Warning signs on the cross road or in advance of the previous off-ramp may be required for overheight permit loads. Check with the Regional Permit Manager.

After establishing the opening requirements, a field review of the bridge site should be made by the District designer to ensure that existing facilities (drainage, other bridges, or roadways) will not conflict with the falsework.

The placement and removal of falsework requires special consideration. During these operations, traffic should either be stopped for short intervals or diverted away from the span where the placement or removal operations are being performed. The method of traffic handling during these operations is to be included in the Special Provisions.

Topic 205 - Road Connections and Driveways

205.1 Access Openings on Expressways

Access openings are used only on expressways. The term access opening applies to openings through the right of way line which serve abutting land ownerships whose remaining access rights have been acquired by the State.

- (1) *Criteria for Location.* Access openings should not be spaced closer than one-half mile to an adjacent public road intersection or to another private access opening that is wider than 30 feet. When several access openings are closely spaced, a frontage road should be considered (see Index 104.3). To discourage wrong-way movements, access openings should be located directly opposite, or at least 300 feet from a median opening.

Sight distance equivalent to that required for public road intersections shall be provided (see Index 405.1).

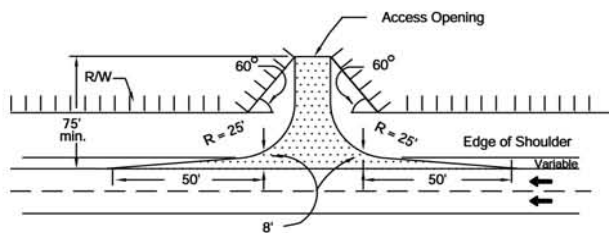
- (2) *Width.* The normal access opening width should be 30 feet. A greater width may result in large savings in right of way costs in some instances, but should be considered with caution because of the possibility that public use might develop. Conversion of a private opening into a public road connection requires the consent of the CTC, which cannot be committed in advance (see the Project Development Procedures Manual).
- (3) *Recessed Access Openings.* Recessed access openings, as shown on Figure 205.1, are desirable at all points where private access is permitted and should be provided whenever they can be obtained without requiring alterations to existing adjacent improvements. When recessed openings are required, the opening should be located a minimum distance of 75 feet from the nearest edge of the traveled way.
- (4) *Joint Openings.* A joint access opening serving two or more parcels of land is desirable whenever feasible. If the property

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line is not normal to the right of way line, care should be taken in designing the joint opening so that both owners are adequately served.

- (5) *Surfacing.* All points of private access should be surfaced with adequate width and depth of pavement to serve the anticipated traffic. The surfacing should extend from the edge of the traveled way to the right of way line.

Figure 205.1
Access Openings on
Expressways



RECESSED OPENING

NOTES:

- By widening the expressway shoulder, deceleration lanes may be provided where justified.
- This detail, without the recess, may be used on conventional highways.

205.2 Private Road Connections

The minimum private road connection design is shown on Figure 205.1. Sight distance requirements for the minimum private road connection are shown on Figure 405.7 (see Index 405.1).

205.3 Urban Driveways

These instructions apply to the design of driveways to serve property abutting on State highways in cities or where urban type development is encountered.

Details for driveway construction are shown on the Standard Plans. For corner sight distance, see Index 405.1(2)(d).

- (1) *Correlation with Local Standards.* Where there is a local requirement regulating driveway construction, the higher standard will normally govern.
- (2) *Driveway Width.* The width of driveways for both residential and commercial usage is measured at the throat, exclusive of any flares. ("W" as shown in Standard Plan A87A).
- (3) *Residential Driveways.* The width of single residential driveways should be 12 feet minimum and 20 feet maximum. The width of a double residential driveway such as used for multiple dwellings should be 20 feet minimum and 30 feet maximum. The width selected should be based on an analysis of the anticipated volume, type and speed of traffic, location of buildings and garages, width of street, etc.
- (4) *Commercial Driveways.* Commercial driveways should be limited to the following maximum widths:
 - (a) When the driveway is used for one-way traffic, the maximum width should be 25 feet. If the driveway serves a large parcel, where large volumes of vehicles or large vehicles are expected, the entrance maximum width should be 40 feet and the exit maximum width should be 35 feet.
 - (b) When the driveway is used for two-way traffic, the maximum width should be 35 feet. If the driveway serves a large parcel, where large volumes of vehicles or large vehicles are expected, then the maximum width should be 45 feet.
 - (c) When only one driveway serves a given property, in no case should the width of the driveway including the side slope distances exceed the property frontage.
 - (d) When more than one driveway is to serve a given property, the total width of all driveways should not exceed 70 percent of the frontage where such a frontage is 100 feet or less. Where the frontage is more than 100 feet, the total driveway width should not exceed 60 percent of the frontage. In either case, the width of the

individual driveway should not exceed those given in the preceding paragraphs. Where more than one driveway is necessary to serve any one property, not less than 20 feet of full height curb should be provided between driveways. This distance between driveways also applies to projects where curbs and gutters are not to be placed.

- (e) Certain urban commercial driveways may need to accommodate the maximum legal vehicle. The width will be determined by the use of truck turn templates.

- (5) *Surfacing.* Where curbs, gutters, and sidewalks are to be placed, driveways should be constructed of portland cement concrete. Where only curbs and gutters are to be placed and pedestrian traffic or adjacent improvements do not warrant concrete driveway construction, the driveway may be paved with the same materials used for existing surfacing on the property to be served.

- (6) *Pedestrian and Disabled Persons Access.* Where sidewalks traverse driveways, accessibility regulations require that a relatively level (2 percent max. cross fall) path, at least 4 feet wide, is provided. Provision of this feature, as indicated in the Standard Plans, may require the acquisition of a construction easement or additional right of way. Assessment of these needs must be performed early enough in the design to allow time for acquiring any necessary permits or right of way. Additionally, designers should consider the following:

- Where restricted parking zones have been established (either blue or white painted zones) adjacent to driveways, but no reasonably close ramp access to the sidewalk exists, consideration should be given to reducing the maximum slope of the driveway from 10 percent to 8.33 percent to provide sidewalk access to the disabled.
- In many cases providing the pathway along the back of the driveway will lower the

elevation at the back of the sidewalk. Depending on grades behind the sidewalk the potential may exist for roadway generated runoff to enter private property. The need for features such as low berms within the construction easement, or installation of catch basins upstream of the driveway should be determined.

When pedestrian activity is neither present, nor expected to be present within the reasonable future, the designer may develop driveway details that eliminate the flatter portion along the back edge in lieu of using the Standard Plans for driveways. Refer to Topic 105 for additional information related to pedestrian facilities.

205.4 Driveways on Frontage Roads and in Rural Areas

On frontage roads and in rural areas where the maximum legal vehicle must be accommodated, standard truck-turn templates should be used to determine driveway widths where the curb or edge of traveled way is so close to the right of way line that a usable connection cannot be provided within the standard limits.

Where county or city regulations differ from the State's, it may be desirable to follow their regulations, particularly where jurisdiction of the frontage road will ultimately be in their hands.

Details for driveway construction are shown on the Standard Plans. For corner sight distance, see Index 405.1(2)(c).

205.5 Financial Responsibility

Reconstructing or relocating any access openings, private road connections, or driveways required by revisions to the State highway facility should be done at State expense by the State or its agents. Reconstruction or relocation requested by others should be paid for by the requesting party.

404.3 Turning Templates

(1) *General.* The truck-turn template is a design aid for locating the wheel paths of large vehicles as they turn through at-grade intersections. Consideration should be given to the overhang of the truck, where the body of the truck slightly extends (approximately 2 feet) beyond the wheel path. The template is useful for determining corner radii, for positioning island noses, and for establishing clearance to bridge piers, signal poles, and other hardware at intersections. Templates can help determine the width of a channeled separate turning lane. Topic 407 illustrates scaled turning templates for the various design vehicles and turning radii.

(2) *STAA Truck.* The STAA truck-turn templates should be used in the design of all new interchanges and intersections on the National Network and on routes leading from the National Network to designated service and terminal routes. On rehabilitation projects they should be used at interchanges and intersections proposed as service or terminal access routes. In some cases, factors such as cost, right of way, environmental issues, local agency desires, and the type of community being served may limit the use of the STAA templates. In those cases, other appropriate templates should be used.

The minimum practical turning radius is 50 feet. However, the 60-foot radius develops less swept width and may have an advantage. The 60-foot radius should be used in most situations, but the 50-foot radius is acceptable in restricted situations.

(3) *California Truck.* The California truck-turn template should be used in the design of highways not on the National Network. The minimum practical turning radius is 50 feet.

(4) *Bus.* At intersections where truck volumes are light or where the predominate truck traffic consists of mostly 3-axle and 4-axle units, the bus turning template may be used. Its wheel paths sweep a greater width than 3-axle delivery trucks and the smaller buses such as

school buses, but a slightly lesser width than a 4-axle truck.

Topic 405 - Intersection Design Standards

405.1 Sight Distance

(1) *Stopping Sight Distance.* See Index 201.1 for minimum stopping sight distance requirements.

(2) *Corner Sight Distance.*

(a) *General--*At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle.

Adequate time must be provided for the waiting vehicle to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed.

The values given in Table 405.1A provide 7-1/2 seconds for the driver on the crossroad to complete the necessary maneuver while the approaching vehicle travels at the assumed design speed of the main highway. The 7-1/2 second criterion is normally applied to all lanes of through traffic in order to cover all possible maneuvers by the vehicle at the crossroad. However, by providing the standard corner sight distance to the lane nearest to and farthest from the waiting vehicle, adequate time should be obtained to make the necessary movement. On multilane highways a 7-1/2 second criterion for the outside lane, in both directions of travel, normally will provide increased sight distance to the inside lanes. Consideration should be given to increasing these values on downgrades steeper than 3 percent and longer than 1 mile (see Index 201.3), where there are high truck volumes on the crossroad, or where the skew of the intersection substantially increases the distance traveled by the crossing vehicle.

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In determining corner sight distance, a set back distance for the vehicle waiting at the crossroad must be assumed. **Set back for the driver on the crossroad shall be a minimum of 10 feet plus the shoulder width of the major road but not less than 13 feet.** Corner sight distance is to be measured from a 3.5-foot height at the location of the driver on the minor road to a 4.25-foot object height in the center of the approaching lane of the major road. If the major road has a median barrier, a 2-foot object height should be used to determine the median barrier set back.

In some cases the cost to obtain 7-1/2 seconds of corner sight distances may be excessive. High costs may be attributable to right of way acquisition, building removal, extensive excavation, or unmitigable environmental impacts. In such cases a lesser value of corner sight distance, as described under the following headings, may be used.

- (b) **Public Road Intersections** (Refer to Topic 205)--At unsignalized public road intersections (see Index 405.7) corner sight distance values given in Table 405.1A should be provided.

At signalized intersections the values for corner sight distances given in Table 405.1A should also be applied whenever possible. Even though traffic flows are designed to move at separate times, unanticipated vehicle conflicts can occur due to violation of signal, right turns on red, malfunction of the signal, or use of flashing red/yellow mode.

Where restrictive conditions exist, similar to those listed in Index 405.1(2)(a), the minimum value for corner sight distance at both signalized and unsignalized intersections shall be equal to the stopping sight distance as given in Table 201.1, measured as previously described.

- (c) **Private Road Intersections** (Refer to Index 205.2) and **Rural Driveways** (Refer to Index 205.4)--**The minimum corner sight**

distance shall be equal to the stopping sight distance as given in Table 201.1, measured as previously described.

- (d) **Urban Driveways** (Refer to Index 205.3)--Corner sight distance requirements as described above are not applied to urban driveways.

- (3) *Decision Sight Distance.* At intersections where the State route turns or crosses another State route, the decision sight distance values given in Table 201.7 should be used. In computing and measuring decision sight distance, the 3.5-foot eye height and the 0.5-foot object height should be used, the object being located on the side of the intersection nearest the approaching driver.

The application of the various sight distance requirements for the different types of intersections is summarized in Table 405.1B.

- (4) *Acceleration Lanes for Turning Moves onto State Highways.* At rural intersections, with stop control on the local cross road, acceleration lanes for left and right turns onto the State facility should be considered. At a minimum, the following features should be evaluated for both the major highway and the cross road:

- divided versus undivided
- number of lanes
- design speed
- gradient
- lane, shoulder and median width
- traffic volume and composition
- turning volumes
- horizontal curve radii
- sight distance
- proximity of adjacent intersections
- types of adjacent intersections

For additional information and guidance, refer to AASHTO, A Policy on Geometric Design of Highways and Streets, the Headquarters Traffic Liaison and the Design Coordinator.

HIGHWAY DESIGN MANUAL

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Table 405.1A
Corner Sight Distance
(7-1/2 Second Criteria)

Design Speed (mph)	Corner Sight Distance (ft)
25	275
30	330
35	385
40	440
45	495
50	550
55	605
60	660
65	715
70	770

Table 405.1B
Application of Sight Distance
Requirements

Intersection Types	Sight Distance		
	Stopping	Corner	Decision
Private Roads	X	X ⁽¹⁾	
Public Streets and Roads	X	X	
Signalized Intersections	X	(2)	
State Route Inter- sections & Route Direction Changes, with or without Signals	X	X	X

(1) Using stopping sight distance between an eye height of 3.5 ft and an object height of 4.25 ft. See Index 405.1(2)(a) for setback requirements.

(2) Apply corner sight distance requirements at signalized intersections whenever possible due to unanticipated violations of the signals or malfunctions of the signals. See Index 405.1(2)(b).

405.2 Left-turn Channelization

(1) *General.* The purpose of a left-turn lane is to expedite the movement of through traffic, control the movement of turning traffic, increase the capacity of the intersection, and improve safety characteristics.

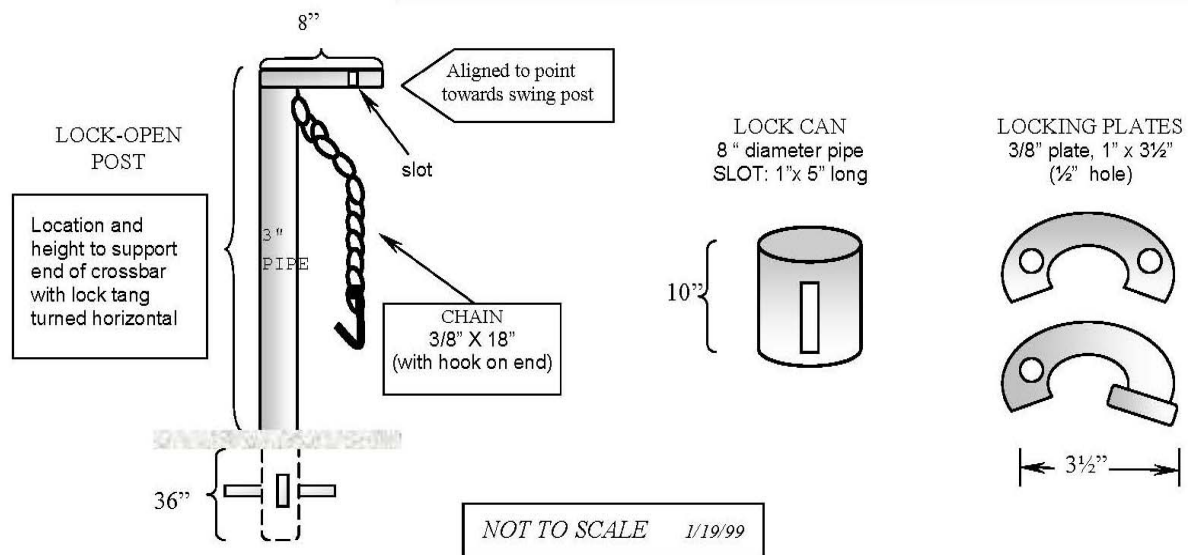
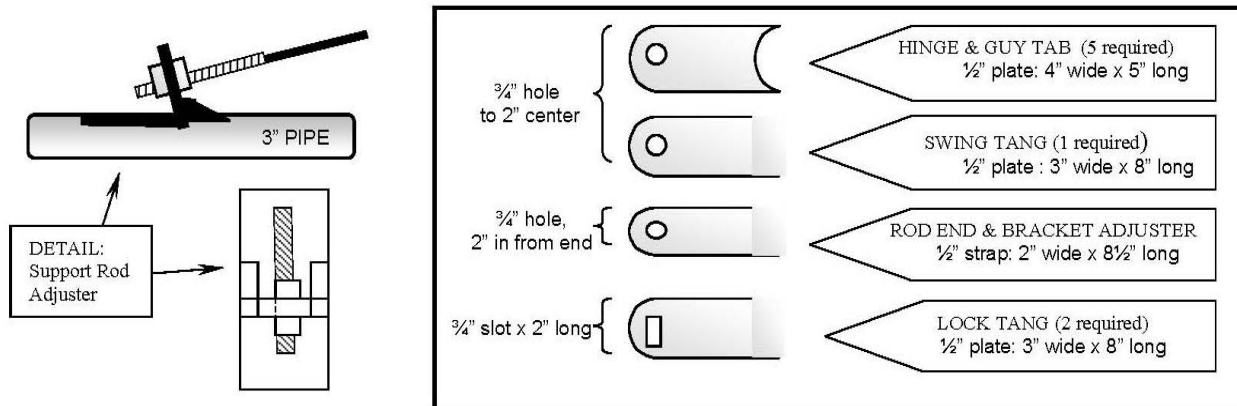
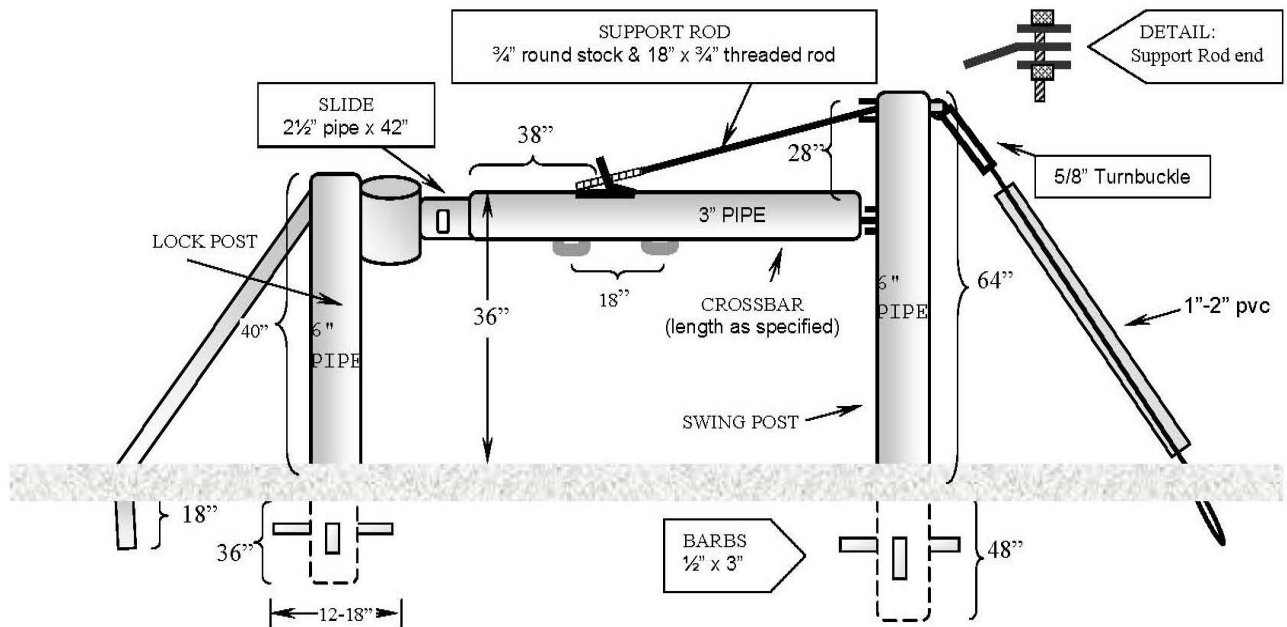
The District Traffic Branch normally establishes the need for left-turn lanes. See "Guidelines for Reconstruction of Intersections," August 1985, published by the California Division of Transportation Operations.

(2) *Design Elements.*

(a) **Lane Width --** The lane width for both single and double left-turn lanes on State highways shall be 12 feet. Under certain circumstances (listed below), left-turn lane widths of 11 feet or as narrow as 10 feet may be used on RRR or other projects on existing State highways and on roads or streets under other jurisdictions when supported by an approved design exception pursuant to Index 82.2. When considering lane width reductions adjacent to curbed medians, refer to Index 303.5 for guidance on effective roadway width; which may vary depending on drivers' lateral positioning and shy distance from raised curbs.

- On high speed rural highways or moderate speed suburban highways where width is restricted, the minimum width of single or dual left-turn lanes may be reduced to 11 feet.
- In severely constrained situations on low to moderate speed urban highways where large trucks are not expected, the minimum width of single left-turn lanes may be reduced to 10 feet. When double left-turn lanes are warranted under these same circumstances the width of each lane shall be no less than 11 feet. This added width is needed to assure adequate clearance between turning vehicles.

GATE PLAN



Gate Specifications

Materials	Description
6" heavy wall pipe	Swing and lock posts
3" black pipe	Crossbar, lock-open post; barrier posts as needed
42" of 2 ½" pipe	Slide
10" of ¼" x 8" black pipe	Lock can
33" of ½" x 4"	Hinges, guy tab, and swing tang
17" of ½" x 2"	Support rod end and adjuster bracket
16" of ½" x 3"	Lock tang and top piece for lock-open post
3" x ½" bar stock	Sign board ears
¾" round stock	Support rod
18" of ¾" threaded rod	Support rod - adjustable section
½" - ¾" rebar or round stock	Barbs for swing/lock post
¾" x 2 ½" bolts, nuts, flat washers	Hinges and support rod
1" x 3/8" plate	Locking plates
3" black pipe, rail, or structural steel	Lock post braces
18" of minimum 3/8" chain	Chain for lock-open post
Hook	Hook for end of chain on lock-open post
½" minimum diameter cable	Swing post guy cable
5/8" minimum diameter thread, 10"take-up, galvanized, clevis or eye at both ends.	Turnbuckle
5/8" minimum shackle	To attach turnbuckle to guy tab
1"-2" diameter pvc pipe	Cover for guy cable (ground to turnbuckle)
Rust-inhibiting undercoat, tractor yellow enamel topcoat	Coating
Approximately 3-4 cubic yards concrete	For anchoring

Construction

Fabrication shall be neat and professional. Welds shall be complete, with burrs and sharp edges smoothed. Gate length shall be sized to fit the site. The ears shown on the underside of the cross bar are for the purpose of attaching a plywood sign board; they shall each have a $\frac{1}{2}$ " x $1\frac{1}{2}$ " horizontal slot for bolting the board, and shall be positioned to space the centers of the slots 18" apart.

A $\frac{1}{4}$ " bead shall be welded on the outside of the end of the slide opposite the lock tang, and on the inside of the crossbar at the end opposite the hinge. This will be done to prevent the slide from being pulled all the way out of the crossbar while not inhibiting the slide from moving freely.

Installation

Holes for hinge and lock posts shall be augured to 12-18" in diameter and 36-48" deep (as specified in the diagram). Concrete shall fill the holes with a mound slightly above the ground. Concrete shall be used to fill the posts to the top. The swing post shall be guyed at an angle no steeper than 45° from horizontal. If no natural anchor is available, a suitable artificial anchor shall be provided. Two rigid diagonal braces shall be attached to the lock post. They shall be of lengths and at angles to best fit the site, and shall have vertical legs set in a minimum of 18" of concrete. Barrier posts set in concrete, or other obstructions such as stumps, logs or boulders, shall be placed as necessary to block any gaps greater than 30" across which motor vehicles, including ATVs, might use to drive around the gate. Installation shall align the lock tang through the center of the slot on the lock can. Between 30 and 90- days after installation, the gate shall be inspected and adjusted or modified as necessary to produce smooth, free-swinging operation that does not require lifting and that allows easy insertion and removal of the locking plate.